21 A4 Shutter 908201

Use of the application program

Product family: Shutter
Product type: Switch
Manufacturer: Siemens

Name: Shutter switch N 524
Order no.: 5WG1 524-1AB01

Functional description

Area of application
The shutter switch N 524 is a DIN rail mounted device with N-system dimensions and a width of 6 module units. It controls individually up to four DC drives for the positioning of venetian blinds, roller shutters, awnings, windows, dampers or valves. The DC drives must be equipped with electromechanical limit switches. It is not permitted to connect DC drives without limit switches to the outputs (e.g. DC drives with built-in pulse transmitter for position control) as the drive, the gear or the sun guard might be damaged. But it is allowed to connect several DC drives with electromechanical limit switches to the same output (channel) of a N 524 in parallel as long as the total current of 1 A per output is not exceeded. It may be exceeded only for a short time at the start of a positioning.

Control via positioning commands
The application program 21 A4 Shutter 908201 should only be used in connection with the shutter switch N 524. For the individual control of up to four venetian blinds e.g. first the travel time from one final position to the other has to be measured and the corresponding software parameter to be set to the measured value. Then the positioning time from the vertical to the horizontal slat position has to be measured and the corresponding parameter to be set as accurately as possible.
Apart from the possibility to travel the sun-/sight guard directly into one of its two final positions by switching commands “Up/Down” it is also possible for both the shutter and its slats to be travelled independently into an intermediate position, defined as a percentage value, by positioning commands (EIS 6 objects). The accuracy achieved by the positioning of the shutter or the slats depends on the constancy of the DC voltage, the motor and the gear used and not on the shutter switch N 524.
The shutter and its slats will always run on the shortest way possible from an intermediate position to a new one. If required, once a shutter has run into the lower final position and the limit switch has been addressed, the slats can be automatically rotated into a pre-set intermediate position e.g. to let more daylight into the room.
When a motor is switched on and a new command will result in a change of the direction of rotation, the motor first will be switched off (stopped) for 0.9 s before switching it on again.
The shutter switch N 524 may be controlled by a weather station that supports sun tracking control. This can be used in the case of sun protection to position the slats vertically to the angle of the sunbeams thus reflecting the direct sunlight (heat radiation) but allowing the diffused light to pass between the slats and so to contribute to the illumination of the room. Daylight directing is also possible, but only within the restrictions concerning the exactness and the step-width of the slats positioning, resulting out of the constancy of the DC voltage and the mechanical characteristics of motor and gear. Both functions will help to reduce the energy costs for lighting control.

Operating modes and communication objects
The application program 21 A4 Shutter 908201 can be set to distinguish between two operating modes (automatic mode / manual mode) or to only one operating mode (manual mode). Apart from the two objects “Safety” and “Sunblind central, Channel A-D” which are always available, the type and number of the usable communication objects depend on the selected operating mode. In the event of a safety alarm, all sunblinds are moved e.g. to the upper final position via the “Safety” object and movement into other positions is blocked until the alarm is deactivated. The simultaneous movement to the upper or lower limit position is started for all four channels via the object “Sunblind central, Channel A-D”.
In pure manual mode, 4 objects are available per channel for controlling the sunblind and its slats as well as 2 further objects for reporting the current positions of the sunblind and the slats.
In automatic/manual mode, a special object is available for switching all four channels simultaneously from manual to automatic mode and vice versa (e.g. due to a primary central control). Both sunblind and slats can be moved into any position for two channels together (A+B or C+D) via automatic mode commands (with positioning data 0...100%). In addition, one object is available per actuator channel for switching the channel to manual mode or automatic mode. There are also two 1 bit objects available for manual control of sunblind and slats as well as two byte objects for reporting the current positions of sunblind and slats.
If a manual sunblind movement or slat adjustment command is carried out in automatic mode via a shutter switch, the channel automatically switches from automatic mode to manual mode. In manual mode, all automatic mode commands are no longer carried out for the channel that has been set to manual mode. This ensures that the occupant of the room can continually position his sunblind(s) as he requires. This position can only be modified again by a primary automatic control when the

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sun is no longer shining and when all sunblinds will be moved up automatically to their final upper position.
The receipt of a central “Up/Down” command for opening or closing all sunblinds always leads first to switch all channels of the actuator to automatic mode.
The current position of the sunblind and its slats can be transferred as percentage values in the range 0 – 100% (0% = sunblind or slats fully open, 100% = sunblind or slats fully closed) via two status objects per channel, either in response to a query or automatically once a new position has been reached.

Communication objects with distinction between Automatic / manual mode

Phys.Addr.	Product	Program		
no.	Object name		Function	Type
01.01.029	Sunblind switch N 524	21 A4 Sunblind 908201		
0	Safety		Safety	1 Bit
1	Sunblind central, Channel A-D		Up / Down	1 Bit
2	Manual mode / automatic mode, central		Off / On	1 Bit
3	Sunblind position, automatic mode, A/B		8-bit Value	1 Byte
4	Slats position automatic mode, Channel A/B		8-bit Value	1 Byte
5	Sunblind position, automatic mode, C/D		8-bit Value	1 Byte
6	Slats position automatic mode, Channel C/D		8-bit Value	1 Byte
7	Manual mode / automatic mode, Channel A		Off / On	1 Bit
8	Venetian blind manual mode, Channel A		Up / Down	1 Bit
9	Slats manual mode, Channel A		Open / Close	1 Bit
10	Status venetian blind position, Channel A		8-bit Value	1 Byte
11	Status slats position, Channel A		8-bit Value	1 Byte
12	Manual mode / automatic mode, Channel B		Off / On	1 Bit
13	Venetian blind manual mode, Channel B		Up / Down	1 Bit
14	Slats manual mode, Channel B		Open / Close	1 Bit
15	Status venetian blind position, Channel B		8-bit Value	1 Byte
16	Status slats position, Channel B		8-bit Value	1 Byte
17	Manual mode / automatic mode, Channel C		Off / On	1 Bit
18	Venetian blind manual mode, Channel C		Up / Down	1 Bit
19	Slats manual mode, Channel C		Open / Close	1 Bit
20	Status venetian blind position, Channel C		8-bit Value	1 Byte
21	Status slats position, Channel C		8-bit Value	1 Byte
22	Manual mode / automatic mode, Channel D		Off / On	1 Bit
23	Venetian blind manual mode, Channel D		Up / Down	1 Bit
24	Slats manual mode, Channel D		Open / Close	1 Bit
25	Status venetian blind position, Channel D		8-bit Value	1 Byte
26	Status slats position, Channel D		8-bit Value	1 Byte

Obj	Object name	Function	Type	Flags
0	Safety	Safety	1 Bit	CWTU
This object can be linked with a safety address e.g. from a wind detector or an intrusion detection system which cyclically sends a logic “0” in the idle state and a logic “1” in the event of an alarm. If the “Safety” parameter is “enabled”, the shutter switch moves the sunblind in the event of a safety alarm into the position defined via the parameter “Safety position” and locks any further operation of the shutter until the safety alarm is deactivated. The same process occurs if the parameter “Monitoring time for safety” has been enabled and no telegrams have been received during the set period. In both cases, telegrams for sunblind movement and slat adjustment as well as the operation of the pushbuttons on the actuator are ignored until a logic “0” is received for the safety object. When a safety alarm is active, there is also no automatic switching from automatic mode to manual mode or vice versa which otherwise would be triggered by the receipt of movement commands at the objects 1, 8, 9, 13, 14, 18, 19, 23 and 24.				
1	Sunblind central, Channel A-D	Up / Down	1 Bit	CWTU
If a telegram is received by this object, all channels of the shutter switch are first automatically switched to “Automatic mode” before moving all sunblinds. If a logic “0” is received, the sunblinds are raised (opened). If a logic “1” is received, they are lowered (closed). If venetian blinds are moved via this object into the lower final position, their slats are then automatically moved into the position preset via the parameter “Slats adjustment after sunblind down in percent ”.				
2	Manual mode / automatic mode, central	Off / On	1 Bit	CWTU
All channels can be switched simultaneously via this object between “Automatic mode” and “Manual mode”. Object values: 0 = Manual mode 1 = Automatic mode Additionally via the objects 7, 12, 17, 22 each channel can be switched individually between “Automatic mode” and “Manual mode”.				

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Obj	Object name	Function	Type	Flags
3	Sunblind position, automatic mode, Channel A/B	8-bit Value	1 Byte	CWTU

With this object, the sunblinds of channel A and B are moved into any position during automatic mode. If a channel is set to “Manual mode”, the movement command for this channel is not carried out.
Sunblind positions can be transferred with this object as EIS 6 values in the range between 0 and 255. The following values apply:

0		Invalid value (ignored)
1	(=0%)	Sunblind fully raised
255	(=100%)	Sunblind fully lowered

As soon as the sunblind position preset via this object has been reached, the slat position which was last set via object 4 (“Slats position, automatic mode”) is automatically restored.
If the sunblind is moved into an intermediate position for the first time after supply voltage recovery, it is first moved to the limit switch which is nearest to the preset sunblind position. The slats remain fully opened until a positioning command for slat adjustment is received.
The motor is switched off if either the sunblind adjustment has been finished or a limit switch has been reached. The object value of both status objects (sunblind and slats) is updated and, if set in the parameters, the object value of the status objects of both channels is transmitted on the bus.

Obj	Object name	Function	Type	Flags
4	Slats position, automatic mode, Channel A/B	8-bit Value	1 Byte	CWTU

With this object, the slats of channel A and B can be moved into any position during automatic mode. If one of the two channels is set to “Manual mode”, the movement command for this channel is not carried out.
Using slat adjustment, slight deviations in the height of the sunblinds can be produced. If the current slat position is invalid (value = 0, e.g. after bus voltage recovery), the slats don´t move. The slats position becomes valid as soon as one of the limit switches has been reached.
Slat positions can be transferred with this object as EIS 6 values in the range between 0 and 255. The following values apply:

0		Invalid value (ignored)
1	(=0%)	Slats fully open
255	(=100%)	Slats fully closed

The motor is switched off as soon as the slat adjustment has been finished or a limit switch has been addressed. The object value of both status objects (sunblind and slats) is updated and if set in the parameters, the object value of the status objects of both channels is transmitted on the bus.
If the function „Roller shutter“ is selected this object will also be displayed but is then without any functionality.

Obj	Object name	Function	Type	Flags
5	Sunblind position, automatic mode, Channel C/D	8-bit Value	1 Byte	CWTU

With this object, the sunblinds of channel C and D are moved into any position during automatic mode. If a channel is set to “Manual mode”, the movement command for this channel is not carried out.
Sunblind positions can be transferred with this object as EIS 6 values in the range between 0 and 255. The following values apply:

0		Invalid value (ignored)
1	(=0%)	Sunblind fully raised
255	(=100%)	Sunblind fully lowered

As soon as the sunblind position preset via the object has been reached, the slat position which was last set via object 6 (“Slats position, automatic mode”) is automatically restored.
If the sunblind is moved into an intermediate position for the first time after supply voltage recovery, it is first moved to the limit switch which is nearest to the preset sunblind position. The slats remain fully opened until a positioning command for slat adjustment is received.
The motor is switched off if either the sunblind adjustment has been finished or a limit switch has been reached. The object value of both status objects (sunblind and slats) is updated and if set in the parameters, the object value of the status objects of both channels is transmitted on the bus.

Obj	Object name	Function	Type	Flags
6	Slats position, automatic mode, Channel C/D	8-bit Value	1 Byte	CWTU

With this object, the slats of channel C and D can be moved into any position during automatic mode. If one of the two channels is set to “Manual mode”, the movement command for this channel is not carried out.
Using slat adjustment, slight deviations in the height of the sunblinds can be produced. If the current slat position is invalid (value = 0, e.g. after bus voltage recovery), the slats don´t move. The slats position becomes valid as soon as one of the limit switches has been reached.
Slat positions can be transferred with this object as EIS 6 values in the range between 0 and 255. The following values apply:

0		Invalid value (ignored)
1	(=0%)	Slats fully open
255	(=100%)	Slats fully closed

The motor is switched off as soon as the slat adjustment has been finished or a limit switch has been addressed. The object value of both status objects (shutter and slats) is updated and if set in the parameters, the object value of the status objects of both channels is transmitted on the bus.
If the function „Roller shutter“ is selected this object will also be displayed but is then without any functionality.

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Obj	Object name	Function	Type	Flags
7, 12, 17, 22	Manual mode / automatic mode, Channel A (7), B (12), C (17), D (22)	Off / On	1 Bit	CRWTU
The corresponding channels can toggle via these objects between “Automatic mode” and “Manual mode”. The object value of these objects is updated when the operating mode of the channel is changed (automatic mode or manual mode) and can be read out via the bus. Object values: 0 = Manual mode 1 = Automatic mode				
8, 13, 18, 23	Venetian blind manual mode, Channel A (8), B (13), C (18), D (23)	Up / Down	1 Bit	CWTU
Sunblind movement “Up/Down” (EIS 7) for the respective channel is initiated with this object. If a telegram with this object is received, the operating mode of the channel is first switched to manual mode. On receipt of a logic “0”, the sunblind is raised while a logic “1” lowers the sunblind. If the sunblind moves to the lower final position (Down) via this object, the slat position set in the parameter “Slats adjustment after sunblind down in percent” is automatically adjusted.				
9, 14, 19, 24	Slats manual mode, Channel A (9), B (14), C (19), D (24)	Open / Close	1 Bit	CWTU
This EIS 7 object is used for the stepwise slat adjustment of the corresponding channel (STEP) or to stop a sunblind during movement. If a telegram with this object is received, the operating state of the channels is first switched to manual mode. The value set in the parameter “Slats adjustment per step in percent” is converted internally into an adjustment period referring to the total travel time of the slats. During slat adjustment, the drive motor of the shutter is always controlled for the duration of the adjustment time i.e. a slat adjustment can lead to a slight movement of the shutter if the slat adjustment range is exceeded. The motor is switched off as soon as the slat adjustment has been finished or a limit switch has been reached. The object value of both status objects (sunblind and slats) is updated and if set in the parameters, the object value of the status objects of the channel is transmitted on the bus. According to EIS 7, sunblind movement can be stopped via the STEP command for slat adjustment. The object value of both status objects is likewise updated with this STEP command and if set in the parameters, the object value of both status objects (sunblind and slats) of the channel is transmitted on the bus.				

Obj	Object name	Function	Type	Flags
10, 15, 20, 25	Status sunblind position, Channel A (10), B (15), C (20), D (25)	8-bit Value	1 Byte	KLÜA
Using the group address that is linked with this object, it is possible to send or query the status of the sunblind position for the corresponding channel. The following values apply: 0 Unknown shutter position 1 (=0%) Sunblind is fully open (UP) 255 (=100%) Sunblind is fully closed (DOWN) An unknown sunblind position occurs after a supply voltage recovery. The sunblind position becomes valid when the sunblind has reached one of the final positions.				
11, 16, 21, 26	Status slats position, Channel A (11), B (16), C (21), D (26)	8-bit Value	1 Byte	KLÜA
Using the group address that is linked with this object, it is possible to send or query the status of the slat position for the corresponding channel. The following values apply: 0 Unknown slat position 1 (=0%) Slats are fully open (OPEN) 255 (=100%) Slats are fully closed (CLOSED) An unknown slat position occurs after a supply voltage recovery. The slat position becomes valid when the shutter has reached one of the final positions.				

Maximum number of group addresses: 40
Maximum number of associations: 65

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Communication objects when exclusively Manual mode

Phys.Addr.	Product	Program		
no.	Object name		Function	Type
01.01.029	Sunblind switch N 524	21 A4 Sunblind 908201		
0	Safety		Safety	1 Bit
1	Sunblind central, Channel A-D		Up / Down	1 Bit
2	Venetian blind, Channel A		Up / Down	1 Bit
3	Slats, Channel A		Open / Close	1 Bit
4	Venetian blind position, Channel A		8-bit Value	1 Byte
5	Slats position, Channel A		8-bit Value	1 Byte
6	Status venetian blind position, Channel A		8-bit Value	1 Byte
7	Status slats position, Channel A		8-bit Value	1 Byte
8	Venetian blind, Channel B		Up / Down	1 Bit
9	Slats, Channel B		Open / Close	1 Bit
10	Venetian blind position, Channel B		8-bit Value	1 Byte
11	Slats position, Channel B		8-bit Value	1 Byte
12	Status venetian blind position, Channel B		8-bit Value	1 Byte
13	Status slats position, Channel B		8-bit Value	1 Byte
14	Venetian blind, Channel C		Up / Down	1 Bit
15	Slats, Channel C		Open / Close	1 Bit
16	Venetian blind position, Channel C		8-bit Value	1 Byte
17	Slats position, Channel C		8-bit Value	1 Byte
18	Status venetian blind position, Channel C		8-bit Value	1 Byte
19	Status slats position, Channel C		8-bit Value	1 Byte
20	Venetian blind, Channel D		Up / Down	1 Bit
21	Slats, Channel D		Open / Close	1 Bit
22	Venetian blind position, Channel D		8-bit Value	1 Byte
23	Slats position, Channel D		8-bit Value	1 Byte
24	Status venetian blind position, Channel D		8-bit Value	1 Byte
25	Status slats position, Channel D		8-bit Value	1 Byte

Obj	Object name	Function	Type	Flags
0	Safety	Safety	1 Bit	CWTU
This object can be linked with a safety alarm e.g. from a wind sensor or from an intrusion detection system. A wind sensor e.g. has to cyclically send a logic “0” in the idle state and a logic “1” in the event of a wind alarm. If the “Safety” parameter is “enabled”, the actuator moves the sunblind in the event of a safety alarm into the position defined via the parameter “Safety position” and locks further operation of the sunblind until the safety alarm is deactivated. The same process occurs if the parameter “Monitoring time for safety” has been enabled and no telegrams have been received during the set period. In both cases, telegrams for sunblind movement and slat adjustment as well as the operation of the pushbuttons in the actuator are ignored until a logic “0” is received for the safety object.				

Obj	Object name	Function	Type	Flags
1	Sunblind central, Channel A-D	Up / Down	1 Bit	CWTU
If a telegram is received by this object, all sunblinds are moved simultaneously into the corresponding final position. If a logic “0” is received, the sunblinds are raised (opened). If a logic “1” is received, they are lowered (closed). If the sunblinds are moved via this object into the lower final position, the slats are then automatically moved into the preset positions via the parameter “Slats adjustment after shutter down in percent”.				
2, 8, 14, 20	Venetian blind, Channel A (2), B (8), C (14), D (20)	Up / Down	1 Bit	CWTU
Sunblind movement “Up/Down” (EIS 7) for the respective channel is initiated with this object. On receipt of a logic “0”, the sunblind is raised while a logic “1” lowers the sunblind. If the sunblind moves to the lower final position (Down) via this object, the slat position set in the parameter “Slats adjustment after sunblind down in percent” is automatically adjusted.				
3, 9, 15, 21	Slats, Channel A (3), B (9), C (15), D (21)	Open / Close	1 Bit	CWTU
This EIS 7 object is used for slat adjustment of the corresponding channel (STEP) or to stop a sunblind during movement. The value set in the parameter “Slats adjustment per step in percent” is converted internally into an adjustment period referring to the total travel time of the slats. During slat adjustment, the motor of the sunblind is always controlled for the duration of the adjustment time i.e. a slat adjustment can lead to a slight movement of the sunblind if the slat adjustment range is exceeded. The motor is switched off as soon as the slat adjustment has been finished or a limit switch has been reached. The object value of both status objects (sunblind and slats) is updated and if set in the parameters, the object value of the status objects of the channel is transmitted on the bus. According to EIS 7, sunblind movement can be stopped via the STEP command for slat adjustment. The object value of both status objects is likewise updated with this STEP command and if set in the parameters, the object value of both status objects (sunblind and slats) of the channel is transmitted on the bus.				

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Obj	Object name	Function	Type	Flags
4, 10, 16, 22	Venetian blind position, Channel A (4), B (10), C (16), D (22)	8-bit Value	1 Byte	CWTU

With this object, the sunblind of the corresponding channel is moved into any position. Sunblind positions can be transferred as EIS 6 values in the range between 0 and 255. The following values apply:

0		Invalid value (ignored)
1	(=0%)	Sunblind fully raised
255	(=100%)	Sunblind fully lowered

As soon as the sunblind position preset via the object has been reached, the slat position which was last set via the relevant object 5, 11, 17 or 23 (Slats position) is automatically restored.

If the sunblind is moved into an intermediate position for the first time after supply voltage recovery, it is first moved to the limit switch which is nearest to the preset sunblind position. The slats remain fully opened until a positioning command for slat adjustment is received.

The motor is switched off if the sunblind adjustment has been finished or a limit switch has been reached. The object value of both status objects (sunblind and slats) is updated and if set in the parameters, the object value of the status objects of the corresponding channel is transmitted on the bus.

Obj	Object name	Function	Type	Flags
5, 11, 17, 23	Slats position, Channel A (5), B (11), C (17), D (23)	8-bit Value	1 Byte	CWTU

With these objects, the slats of the corresponding channel can be moved into any position. Using slat adjustment, slight deviations in the height of the sunblind can be produced. If the current slat position is invalid (value = 0, e.g. after bus voltage recovery), the slats don´t move. The slat position becomes valid as soon as one of the limit switches has been reached.

Slat positions can be transferred with these objects as EIS 6 values in the range between 0 and 255. The following values apply:

0		Invalid value (ignored)
1	(=0%)	Slats fully open
255	(=100%)	Slats fully closed

The motor is switched off as soon as the slat adjustment has been finished or a limit switch has been addressed. The object value of both status objects (sunblind and slats) is updated and if set in the parameters, the object value of the status objects of the corresponding channel is transmitted on the bus.

Obj	Object name	Function	Type	Flags
6, 12, 18, 24	Status venetian blind position, Channel A (6), B (12), C (18), D (24)	8-bit Value	1 Byte	CRTU

Using the group address that is linked with this object, it is possible to send or query the status of the sunblind position for the corresponding channel.

The following values apply:

0		Unknown shutter position
1	(=0%)	Sunblind is fully open (UP)
255	(=100%)	Sunblind is fully closed (DOWN)

An unknown sunblind position occurs after a supply voltage recovery. The sunblind position becomes valid when the sunblind has reached one of the final positions.

Obj	Object name	Function	Type	Flags
7, 13, 19, 25	Status slats position, Channel A (7), B (13),C (19), D (25)	8-bit Value	1 Byte	CRTU

Using the group address that is linked with this object, it is possible to send or query the status of the slat position for the respective channel.

The following values apply:

0		Unknown slat position
1	(=0%)	Slats are fully open (OPEN)
255	(=100%)	Slats are fully closed (CLOSED)

An unknown slat position occurs after a supply voltage recovery. The slat position becomes valid when the sunblind has reached one of the final positions.

Maximum number of group addresses: 40
Maximum number of associations: 65

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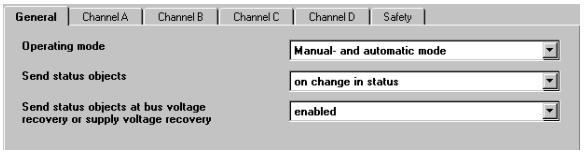
Parameters

General

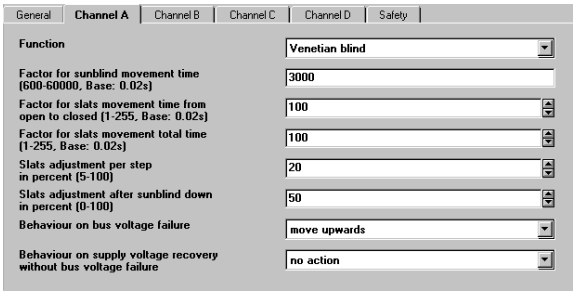


Note

The settings printed in **bold** correspond to the factory settings (default values).

Parameters	Settings
Operating mode	**Manual and automatic mode** Manual mode
This parameter determines whether the actuator should manage both manual mode and automatic mode or whether it is only controlled in manual mode (if “Manual mode” is selected, the communication objects only required for automatic mode are no longer displayed. The sequence of the communication objects is also modified).	
Send status objects	**using read request only** on change in status
It can be set via this parameter whether the status objects for the position of sunblind and slats of all the channels can only be read out (“using read request only”) or whether the corresponding value should be sent automatically when a new position is reached (“on change of status”). If “on change of status” is selected, the additional parameter “Send status objects at bus voltage recovery or supply voltage recovery” is displayed.	
Send status objects at bus voltage recovery or supply voltage recovery	**disabled** enabled
It can be set via this parameter whether the transmission of the status objects for the position of sunblind and slats of all the channels should be enabled or disabled after bus voltage recovery or supply voltage recovery.	

Channel A (B, C, D)



Parameters	Settings
Function	**Venetian blind** Roller shutter
This parameter determines whether the drive of a venetian blind or of a roller shutter is controlled by this channel. If a roller shutter drive is connected, the communication objects and parameters which are required to operate slats are no longer displayed. The multiple sending of stop commands is also ignored and hereby the stepwise adjustment of a roller shutter or awning is prevented.	
Factor for sunblind movement time (600-60000, Base: 0.02s)	600...60,000 (**3,000**) (=12 sec....20 min.; **60 s**)
This parameter determines the total time required by the sunblind to travel from the upper to the lower final position. This travel time serves as a basis for determining the position and for travelling to intermediate positions. It should therefore be entered as accurately as possible as a multiple of 0.02 s.	
Factor for slats movement time from open to closed (1-255, Base: 0.02s)	1...255 (**100**) (0.02 s...5.1 s; **2 s**)
This parameter defines the time required for the slats to move from the closed position (vertical slats) to the open position with horizontal slats. This travel time serves as a basis for determining the position and for travelling to intermediate slat positions. It should therefore be entered as accurately as possible as a multiple of 0.02 s.	

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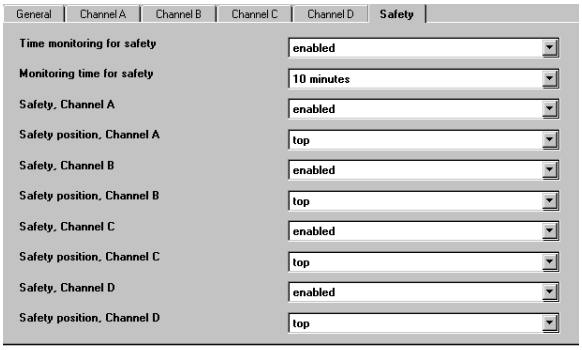
Parameters	Settings
Factor for slats movement total time (1-255, Base: 0.02s)	1...255 (**100**) (0,02s...5,1s; **2s**)
It is a prerequisite that the venetian blind is lowered with closed slats and raised with open slats. This parameter defines the travel time required by the slats to move from the closed position to that position in which the transition from slat adjustment to sunblind movement begins. This parameter is particularly necessary for venetian blinds which adjust the slats beyond the horizontal position before the upwards movement of the sunblind begins.. This travel time serves as a basis for determining the position and for travelling to intermediate positions. It should therefore be entered as accurately as possible as a multiple of 0.02 s. In the case of a venetian blind which is raised with horizontal slats, the time in this parameter must be identical to the time set for “Factor for slats movement time from open to closed”.	
Slats adjustment per step in percent (5-100)	5...100 (**20**)
The set value is converted into a step adjustment period referring to the “Factor for slats movement time from open to closed”. After a slat adjustment command (STEP command), the motor of the sunblind is controlled for the duration of the step adjustment time. If a final position of the slats has already been reached, a further STEP command in the same direction leads to a slight movement of the sunblind.	
Slats adjustment after sunblind down in percent (0-100):	0...100 (**50**)
Once the sunblind has been moved to the lower final position via one of the corresponding objects, the slats are rotated from the vertical position to the position set in this parameter. 0% = Slats fully open 100% = Slats fully closed	
Behaviour on bus voltage failure	no action **move upwards** move downwards
This parameter defines the final position the sunblind should travel to at a failure in bus communication (e.g. at a bus voltage failure) or whether the sunblind should maintain its current position.	
Behaviour on supply voltage recovery without bus voltage failure	**no action** move upwards move downwards
This parameter defines the final position the sunblind should travel to after supply voltage recovery without having had in the same time a failure in bus communication (e.g. failure of the bus voltage) or whether the sunblind should maintain its current position.	

Note

See Channel A for explanations and settings for the parameters of Channel B, C and D.

Safety



Parameters	Settings
Time monitoring for safety	enabled **disabled**
This parameter determines whether the cyclical receiving of telegrams by the safety object should be monitored. If “enabled” is selected, the additional parameter “Monitoring time for safety” is displayed.	
Monitoring time for safety	1 minute 5 minutes **10 minutes** 30 minutes
If the parameter “Monitoring time for safety” is set to “enabled”, the maximum time interval in which the next telegram to the safety object with a logic “0” must have been received can be set via this parameter.	
Safety, Channel A-D	enabled **disabled**
This parameter determines whether the safety object and the safety function are active for this channel.	
Safety position, Channel A-D	**top** bottom
The final position to which the sunblind will be moved in the event of a safety alarm can be set via this parameter.	