

20 A1 Actuator-BCU Shutter 902302**Use of the application program**

Product family: Input/output
Product type: Binary/binary
Manufacturer: Siemens

Name: Shutter switch UP 520/01
Order no.: 5WG1 520-2AB01

Functional description

With the application program "20 A1 Actuator-BCU Shutter 902302", the output of the shutter switch can be used to control a shutter, roller blind or skylight. There are two basic functions available for the 4-fold push button DELTA studio/fläche that is connected to its physical external interface. The push button can be used as a 4-fold rocker with preselection or as a 1-fold rocker with value preselection

Functional description: 4-fold rocker with preselection

The following functions can be assigned if the push button is used as a 4-fold rocker with preselection: switching (on/off/toggle), dimming, shutter control, saving/recalling scenes and for status or preselection display via LEDs.

Pressing a preselection button activates the corresponding channel (A, B, C or D). The corresponding (parameterised) function can then be carried out with the main rocker. The preselection then automatically switches back to channel A approx. 1.5 minutes after the last action. This option can also be disabled so that the last selected preselection remains active.

Switching

An On or Off signal is sent after each operation of the rocker. No distinction is made however between a long or short push button action. Each rocker contact (upper or lower) is assigned its own object. It is therefore possible e.g. to switch on the lighting in the room with the upper rocker contact while the lower contact triggers the "Central Off" function for several luminaires. However both objects should normally be linked with one address.

Dimming

A distinction is made between a long and short push button action. A brief operation of the rocker sends a corresponding switching command (On, Off or Toggle). If the push button is pressed for a longer period (the duration of which can be set), a dimming command is sent. The functions of "Dimming with stop telegram" and "Dimming with cyclical sending" are available. If "Dimming with stop telegram" is selected, a long push button action sends a command to the dimming object to dim by 100%. When the rocker is released, a stop command is sent. If "Dimming with cyclical sending" is selected, a dimming command is sent at set intervals for the duration of the push button action. It is also possible to assign parameters to the adjustment of the brightness value per dimming command (e.g. adjust by 1/8).

Shutter control

A distinction is made between a long and a short push button action. After a brief operation of the rocker, a switching telegram is sent which adjusts the louvres or stops the movement of the shutters. After a long push button action, the shutter is either raised or lowered depending on the parameter settings. The distinction between whether an Up or Down command is sent, is dependent on the operation of the rocker (upper or lower contact) and the parameter settings. When assigning parameters, it is possible to choose "Upper contact: Up, Lower contact: Down" or vice versa. This parameter makes it possible to control skylights and security gates etc. in both directions. In this case the Up command corresponds to the Off command and the Down command corresponds to the On command.

Scene

Using the "Scene" function, users are able to reprogram a scene module themselves without changing the project design in ETS i.e. they can assign other brightness values or switching states to the individual groups of the respective scene. Two scenes can be recalled by pressing a rocker briefly (e.g. upper contact: scene 1, lower contact: scene 2) while a long rocker operation is used to program them. It is therefore possible to recall or save up to 8 scenes using the 4 channels of the push button (A, B, C or D). The scene is recalled via a 1 bit switching command, whereby scene 1 is recalled with a "0" telegram and scene 2 is recalled with a "1" telegram. It is possible to specify in the parameters which telegrams are sent by the upper and lower rocker contacts.

The scene is saved via a 1 bit switching command, whereby scene 1 is saved with a "0" telegram and scene 2 is saved with a "1" telegram. An application with this type of function must be used in the scene.

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The application programs "12 C0 Scene 740701" and "12 C0 Scene 740801" are available. Before programming a scene, the actuators concerned must be set to the required brightness values and switching states, using the sensors provided. The scene modules that have been addressed are requested on receipt of a telegram to scan the current brightness values and switching states of the actuators and to store them in the corresponding scene. A long rocker operation is indicated by the LED lighting up. It is possible to specify the period that distinguishes a short and long push button action.

LED

The four LEDs can either be used for displaying switching states (status display), for preselection display or as an orientation light if the corresponding parameter settings are selected.

In the setting "Preselection LED", only one LED lights up each time. The active (preselected) channel is specified by the preselection button above it. If the LED is used for status display, an object is assigned to each LED. In this mode, the LEDs can display the status of the corresponding objects which do not however need to be linked with the rest of the objects. This means that the rocker can also display the status of another group of luminaires. It can also be specified for each LED whether the status value should be displayed as inverted.

Functional description: 1-fold rocker with value preselection

When the push button is used as a single rocker with value preselection, one of the following functions can be selected and parameterised: switching (on/off/toggle), dimming, shutter control or saving/recalling scenes. The 4 LEDs of the push button can be used as an orientation light or for status or value display. It is also possible for example for an adjustable brightness value to be recalled directly via the preselection buttons (value preselection). The value preselection function can also be used for other applications e.g. for valve drives or ventilation flaps.

Switching

An On or Off signal is sent after each operation of the rocker. No distinction is made however between a long or short push button action. Each rocker contact (upper or lower) is assigned its own object. It is therefore possible e.g. to switch on the lighting in the room with the upper rocker contact while the lower contact triggers the "Central Off" function for several luminaires. However both objects should normally be linked with one address.

Shutter control

A distinction is made between a long and a short push button action. After a brief operation of the rocker, a switching telegram is sent which adjusts the louvres or stops the movement of the shutters. After a long push button action, the shutter is either raised or lowered depending on the parameter settings. The distinction between whether an Up or Down command is sent, is dependent on the operation of the rocker (upper or lower contact) and the parameter settings. When assigning parameters, it is possible to choose "Upper contact: Up, Lower contact: Down" or vice versa. This parameter makes it possible to control skylights and security gates etc. in both directions. In this case the Up command corresponds to the Off command and the Down command corresponds to the On command.

Dimming

A distinction is made between a long and short push button action. A brief operation of the rocker sends a corresponding switching command (On, Off or Toggle). If the push button is pressed for a longer period (the duration of which can be set), a dimming command is sent. The functions of "Dimming with stop telegram" and "Dimming with cyclical sending" are available. If "Dimming with stop telegram" is selected, a long push button action sends a command to the dimming object to dim by 100%. When the rocker is released, a stop command is sent. If "Dimming with cyclical sending" is selected, a dimming command is sent at set intervals for the duration of the push button action. It is also possible to assign parameters to the adjustment of the brightness value per dimming command (e.g. adjust by 1/8).

When "Toggle" is selected, the signal in the status object is sent as inverted. The status object is only designed for receiving switch signals and should be linked with the switching status of the dimming actuator.

Scene

Using the "Scene" function, users are able to reprogram a scene module themselves without changing the project design in ETS i.e. they can assign other brightness values or switching states to the individual groups of the respective scene. Two scenes can be recalled by pressing a rocker briefly (e.g. upper contact: scene 1, lower contact: scene 2) while a long rocker operation is used to program them. The scene is recalled via a 1 bit switching command, whereby scene 1 is recalled with a "0" telegram and scene 2 is recalled with a "1" telegram. It is possible to specify in the parameters which telegrams are sent by the upper and lower rocker contacts.

The scene is saved via a 1 bit switching command, whereby scene 1 is saved with a "0" telegram and scene 2 is saved with a "1" telegram. An application

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with this type of function must be used in the scene module. The application programs "12 C0 Scene 740701" and "12 C0 Scene 740801" are available. Before programming a scene, the actuators concerned must be set to the required brightness values and switching states, using the sensors provided. The scene modules that have been addressed are requested on receipt of a telegram to scan the current brightness values and switching states of the actuators and to store them in the corresponding scene. A long rocker operation is indicated by the LED lighting up. It is possible to specify the period that distinguishes a short and long push button action.

Value preselection

It is possible to send adjustable 8 bit values immediately on operation via the preselection buttons A-D. If several preselection buttons are operated at the same time, a value that has been set for this push button combination is sent. Twelve push button combination values can be parameterised.

LED

The four LEDs can either be used as an orientation light, for displaying the switching states (status display) or for value display, if the corresponding parameters have been selected.

If the LED is used for status display, an object is assigned to each LED. In this mode, the LEDs can display the status of the corresponding objects which do not however need to be linked with the rest of the objects. This means that the rocker can also display the status of another group of luminaires. It can also be specified for each LED whether the status value should be displayed as inverted.

In the setting "Value LED", all 4 LEDs can be used to display the current preselection. This setting is only possible if the dimming function is selected for the rocker.

Functions of the shutter output

Shutter (Roller blind), Up/Down

When the "Up/Down" object receives a telegram, the shutter is moved in the required direction for a set period. The shutter is raised if the object value is "0" and lowered if the object value is "1". The shutter or roller blind can also be controlled via a dimming object. In this setting, the shutter and louvre objects are inverted to achieve a synchronisation with the push buttons that are being used. The relays are automatically opened once the set period for shutter or roller blind movement has elapsed. If the shutter (roller blind) is already travelling in a certain direction and "Up/Down" telegrams are received to move the shutter in the opposite direction, the shutter (blind) first stops for a set interval before it changes direction. This "Pause on change in direction" depends on the shutter motor that is being used and information should be obtained from the manufacturer.

When the shutter is lowered, it is completely closed. For this reason, it is possible to set a period ("Delay time on a direction change") which causes the shutter motor to move in another direction and thus leads to louvre adjustment. This is also the case if the lowering of the shutter is interrupted by a stop telegram. The time set for the "Pause on change in direction" is observed.

Louvres, Open/Closed

The behaviour of the shutter on receipt of a telegram for louvre adjustment depends on the current status of the shutter. If the shutter is travelling in a specific direction, the shutter movement is stopped. In the case of a roller blind, the receipt of a louvre adjustment telegram functions like a stop telegram. If the roller blind is stationary, it has no effect. During louvre adjustment, if another telegram is received to rotate the louvres in the same direction, the adjustment period is extended. If however a telegram is received to rotate the louvres in the opposite direction, the command is carried out once the pause on change in direction has been observed. If the shutter is stationary, a louvre adjustment telegram leads to shutter movement in the required direction. Once the set period for movement has elapsed (normally 150 ms to 200 ms), the shutter motor is automatically switched off. If a shutter is lowered (without reverse step), the louvres remain closed in this direction. If the shutter is stopped and then raised step by step (louvre adjustment), the louvres are opened first of all and then rotated upwards again. If the louvres are completely closed, further telegrams to rotate the louvres in the same direction cause the shutters to be moved step by step in this direction.

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Safety object (wind alarm)

The safety function can be enabled or disabled. In the event of an alarm signal, a "1" is received by the safety object and the shutters are raised. The safety position of the roller blinds can be selected.

The safety object expects to receive cyclical telegrams from the signalling device (e.g. wind sensor) for monitoring purposes. Even if there is no alarm, the sensor must send telegrams with the value "0" (no alarm) at a set time interval (monitoring time). If the telegrams fail to appear, the shutters are also moved to the safety position. The object value of the safety object is thus set internally to "1" (alarm). The current alarm status can be read out via the safety object (if the safety function is enabled). If the safety position has been activated, the shutters/roller blinds can no longer be controlled via "Up/Down" or louvre adjustment telegrams. If the shutter or roller blind is moved to the safety position, thereby changing direction, the time set in the parameter "Pause on change in direction" is observed. The relays are not opened once the period for shutter or roller blind movement has elapsed. This guarantees that the shutter/roller blind reaches the safety position. The shutter/roller blind can only be operated once the safety object receives a telegram with the value "0" (no alarm).

Bus voltage failure and recovery

The shutter or roller blind is switched off on bus voltage recovery. The shutter and roller blind can be moved up, moved down or stopped on bus voltage failure. In the event of a bus voltage failure, the pause on change in direction that is normally observed is not taken into account. This means for example that if a shutter is currently being lowered, it will change direction after approx. 20 ms. Shutter motors that require a pause are not able to carry out this change in direction. If the relay contacts were already opened before the bus voltage failure, the functionality is not taken into account. When operating heavy roller blind motors, the parameter setting "STOP" should be selected to protect the relays.

Automatic opening of the relays

It is possible to prevent the relays from opening automatically (via the parameter "Function of louvres" in the "Shutter" parameter window). This deactivation takes effect if the relay has been closed for example by an "Open/Closed" telegram. Once a motor has been set in motion, it can then only be brought to a halt with a stop telegram (necessary for reverse circuits). For this reason, the louvre adjustment telegram is always interpreted as a stop telegram. This is also the case when the shutter is stationary (louvre adjustment telegrams no longer exist).

**WARNING**

When using the shutter switch UP 520/01 for roller blind drive mechanisms, the following should be noted when assigning parameters:

(It can otherwise lead to welding of the contacts).

- The parameter "Pause on change in direction" must be set to the time given by the manufacturer of the shutter (generally longer than 500 ms).
- The parameter "Behaviour on bus voltage failure" should be set to "STOP".

Assigning parameters to the push buttons**Function: 4-fold rocker with preselection****General Buttons: Parameters**

General Buttons	Preselection A	Preselection B	Preselection C	Preselection D	Shutter
Rocker type	4-fold rocker with preselection				
Interval for cyclical sending (for dimming with cyclical sending)	0.5 seconds				
Automatic return to preselection A	enabled				
Function of LED	Status [via separate object]				
LED display (LED A)	normal				
LED display (LED B)	normal				
LED display (LED C)	normal				
LED display (LED D)	normal				

Parameters	Settings
Rocker type	4-fold rocker with preselection 1-fold rocker with preselection of a value
The basic function of the push button can be selected here. The objects that are necessary for the setting are displayed in the object list, depending on the function that is selected here.	
Interval for cyclical sending (for dimming with cyclical sending)	0.3; 0.4; 0.5 ; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0 seconds
This parameter is used to set the repetition rate for cyclical sending after a long push button action when the function "Dimming with cyclical sending" is selected. The bus load should be taken into consideration when setting the interval.	

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Parameters	Settings
Automatic return to preselection A	enabled disabled
	This parameter defines whether the preselection automatically switches back to channel A. If the setting "enabled" is selected, the preselection automatically returns to channel A once a fixed delay period (approx. 1.5 min.) has elapsed after the last action of the preselected channel B, C or D. The setting "disabled" stops the automatic return to preselection A. The channel that was last selected via the corresponding preselection button remains active.
Function of LED	Preselection LED Status (via separate object) Orientation light (LED left) Orientation light (LED centre) all LEDs off
	The function of the LEDs is set via this parameter. "Preselection LED": The LED below the preselection button of the selected channel always lights up. "Status (via separate object)": An object is assigned to each LED in this operating mode. The object value "1" switches the LED on. The LEDs can thus display the status of the corresponding objects without these objects having to be linked to the rest of the objects. This means that the rocker can also display the status of another group of luminaires. If this setting is selected, the parameter window changes and the type of display can be selected for LEDs A-D. "Orientation light...": In this setting, the left and centre LEDs can be used as an orientation light. "all LEDs off": The LEDs are always switched off in this mode

Switch

Communication objects

Phys.Addr.		Program	
no.	Object name	Function	Type
01.01.015	20 A1 Actuator-BCU Shutter 902302		
0	Switch, Preselection A (upper rocker contact)	On	1 Bit
1	Switch, Preselection A (lower rocker contact)	Off	1 Bit
2	Switch, Preselection B (upper rocker contact)	On	1 Bit
3	Switch, Preselection B (lower rocker contact)	Off	1 Bit
4	Switch, Preselection C (upper rocker contact)	On	1 Bit
5	Switch, Preselection C (lower rocker contact)	Off	1 Bit
6	Switch, Preselection D (upper rocker contact)	On	1 Bit
7	Switch, Preselection D (lower rocker contact)	Off	1 Bit
...

Obj	Object name	Function	Type	Flag
0	Switch, Preselection A (upper rocker contact)	On	1 Bit	CT
1	Switch, Preselection A (lower rocker contact)	Off	1 Bit	CT

These objects serve as switching objects for the upper or lower rocker contact for preselection A. An On or Off telegram is sent depending on the parameter settings. If "Toggle" is selected, either an On or Off telegram is sent (toggling), depending on the current switching state.

Note

Objects 2-7 of preselection B-D correspond to the objects for the "Switch" function for preselection A and are therefore not described in detail.

Parameters

General Buttons	Preselection A	Preselection B	Preselection C	Preselection D	Shutter
		Preselection B			
		enabled			
		Function of preselection B			
		Switch			
		Upper contact			
		On			
		Lower contact			
		Off			

The functions of parameter windows "Preselection A" to "Preselection D" are identical.

Parameters	Settings
Preselection B	enabled disabled
	This parameter defines whether the channel should be enabled or disabled. The parameter window changes depending on the selection made here. The object types of the preselection are only displayed in the object list if "enabled" is selected. They must then be linked with a group address. This parameter does not appear in the parameter window "Preselection A".
Function of preselection B	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
	The function of the channel is set via this parameter. The parameter window "Preselection B" changes depending on the function selected here and the relevant parameters are displayed with default settings.

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Parameters	Settings
Upper contact	On Off Toggle
Lower contact	On Off Toggle

This parameter defines the sending signal when the rocker is pressed.

Shutter

Communication objects

Phys.Addr.	Program			
no.	Object name	Function	Type	
01.01.015	20 A1 Actuator-BCU Shutter 902302			
0	Louvres, Preselection A	Open / Closed	1 Bit	
1	Shutter, Preselection A	Up / Down	1 Bit	
2	Louvres, Preselection B	Open / Closed	1 Bit	
3	Shutter, Preselection B	Up / Down	1 Bit	
4	Louvres, Preselection C	Open / Closed	1 Bit	
5	Shutter, Preselection C	Up / Down	1 Bit	
6	Louvres, Preselection D	Open / Closed	1 Bit	
7	Shutter, Preselection D	Up / Down	1 Bit	
...

Obj	Object name	Function	Type	Flag
0	Louvres, Preselection A	Open / Closed	1 Bit	CT
1	Shutter, Preselection A	Up / Down	1 Bit	CT

This object serves as a switching object for louvre adjustment for preselection A after a short push button action. In the default setting, a brief operation of the upper contact opens the louvres by one step with an Off telegram while pressing the lower contact briefly causes the louvres to close by one step with an On telegram.

This object is used for shutter movement for preselection A after a long push button action. In the default setting, pressing the upper contact raises the shutter with an Off telegram while pressing the lower contact lowers the shutter with an On telegram. Pressing the rocker briefly while the shutter is moving causes the shutter to stop.

Note

Objects 2-7 of preselection B-D correspond to the objects for the "Shutter" function for preselection A and are therefore not described in detail.

Parameters

General Buttons	Preselection A	Preselection B	Preselection C	Preselection D	Shutter
Preselection B	enabled				
Function of preselection B	Shutter				
Upper / Lower contact	Up / Down				
Long switch operation min.	0.5 seconds				

The functions of parameter windows "Preselection A" to "Preselection D" are identical.

Parameters	Settings
Preselection B	enabled disabled
This parameter defines whether the channel should be enabled or disabled. The parameter window changes depending on the selection made here. The object types of the channel are only displayed in the object list if "enabled" is selected. They must then be linked with a group address. This parameter does not appear in the parameter window "Preselection A".	
Function of preselection B	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
The function of the preselection button is set via this parameter. The parameter window "Preselection B" changes, depending on the function selected here and the relevant parameters are displayed with default settings.	
Upper / Lower contact	Up / Down Down / Up
This parameter specifies the sending signal when the rocker is pressed (short or long rocker operation).	
Long switch operation min.	0.3; 0.4; 0.5 ; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0 seconds
This parameter defines the time limit for a short/long rocker operation. If a rocker is pressed for longer than the set period, the push button detects a long rocker operation.	

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Dimming with stop telegram

Communication objects

Phys. Addr.		Program		
no.	Object name	Function	Type	
01.01.015	20 A1 Actuator-BCU Shutter 902302			
0	Dimming On / Off, Preselection A	On / Off	1 Bit	
1	Dimming, Preselection A	Brighter / Darker	4 Bit	
2	Dimming On / Off, Preselection B	On / Off	1 Bit	
3	Dimming, Preselection B	Brighter / Darker	4 Bit	
4	Dimming On / Off, Preselection C	On / Off	1 Bit	
5	Dimming, Preselection C	Brighter / Darker	4 Bit	
6	Dimming On / Off, Preselection D	On / Off	1 Bit	
7	Dimming, Preselection D	Brighter / Darker	4 Bit	
...	

Obj	Object name	Function	Type	Flag
0	Dimming On / Off, Preselection A	On / Off	1 Bit	CT
This object serves as a switching object for the rocker of preselection A after a short push button action. In the default setting, pressing the upper contact sends an On telegram while pressing the lower contact sends an Off telegram. If "Toggle / Toggle" is selected, either an On or Off telegram is sent (toggling), depending on the current switching state.				
1	Dimming, Preselection A	Brighter / Darker	4 Bit	CT
This object serves as a dimming object for the rocker of preselection A and sends a dimming telegram after a long push button action. The following applies: pressing the upper contact for a long period sends a "Dim brighter" telegram while pressing the lower contact sends a "Dim darker" telegram. A stop telegram is sent when the push button is released.				

Note

Objects 2-7 of preselection B-D correspond to the objects for the function "Dimming with stop telegram" for preselection A and are therefore not described in detail.

Parameters

General Buttons	Preselection A	Preselection B	Preselection C	Preselection D	Shutter
Preselection B	enabled				
Function of preselection B	Dimming with stop telegram				
Upper / Lower contact	On / Off				
Long switch operation min.	0.5 seconds				

The functions of parameter windows "Preselection A" to "Preselection D" are identical.

Parameters	Settings
Preselection B	enabled disabled
This parameter defines whether the preselection button should be enabled or disabled. The parameter window changes depending on the selection made here. The object types of the channel are only displayed in the object list if "enabled" is selected. They must then be linked with a group address. This parameter does not appear in the parameter window "Preselection A".	
Function of preselection B	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
The function of the preselection button is set via this parameter. The parameter window "Preselection B" changes, depending on the function selected here and the relevant parameters are displayed with default settings.	
Upper / Lower contact	On / Off Toggle / Toggle
This parameter defines the function of the upper and lower rocker contacts. In the setting "On / Off", pressing the upper contact sends an On telegram while an Off telegram is sent when the lower contact is pressed. If "Toggle/ Toggle" is selected, either an On or Off telegram is sent (toggling), depending on the current switching state.	
Long switch operation min.	0.3; 0.4; 0.5 ; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0 seconds
This parameter defines the time limit for a short/long rocker operation. If a rocker is pressed for longer than the set period, the push button detects a long rocker operation and sends dimming telegrams.	

Application program description

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Dimming with cyclical sending

Communication objects

Phys.Addr.		Program		
no.	Object name	Function	Type	
01.01.015	20 A1 Actuator-BCU Shutter 902302			
0	Dimming On / Off / Toggle, Preselection A	On / Off / Toggle	1 Bit	
1	Dimming, Preselection A	Brighter / Darker	4 Bit	
2	Dimming On / Off / Toggle, Preselection B	On / Off / Toggle	1 Bit	
3	Dimming, Preselection B	Brighter / Darker	4 Bit	
4	Dimming On / Off / Toggle, Preselection C	On / Off / Toggle	1 Bit	
5	Dimming, Preselection C	Brighter / Darker	4 Bit	
6	Dimming On / Off / Toggle, Preselection D	On / Off / Toggle	1 Bit	
7	Dimming, Preselection D	Brighter / Darker	4 Bit	
...

Obj	Object name	Function	Type	Flag
0	Dimmen On / Off / Toggle, Preselection A	On / Off / Toggle	1 Bit	CWT
This object serves as a switching object for the rocker of preselection A after a short push button action. In the default setting, pressing the upper contact sends an On telegram while pressing the lower contact sends an Off telegram. If "Toggle / Toggle" is selected, either an On or Off telegram is sent (toggling), depending on the current switching state.				
1	Dimming, Preselection A	Brighter / Darker	4 Bit	CT
This object serves as a dimming object for the rocker of preselection A and sends a dimming telegram after a long push button action. The following applies: pressing the upper contact for a long period sends a "Dim brighter" telegram while pressing the lower contact sends a "Dim darker" telegram at the interval selected in the parameter "Interval for cyclical sending".				

Note

Objects 2-7 of preselection B-D correspond to the objects for the function "Dimming with cyclical sending" for preselection A and are therefore not described in detail.

Parameters

General Buttons	Preselection A	Preselection B	Preselection C	Preselection D	Shutter
Preselection B		enabled			
Function of preselection B		Dimming with cyclical sending			
Upper / Lower contact		On / Off, Step=1/8			
Long switch operation min.		0.5 seconds			

The functions of parameter windows "Preselection A" to "Preselection D" are identical.

Parameters	Settings
Preselection B	enabled disabled
Function of preselection B	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)

This parameter defines whether the channel should be enabled or disabled. The parameter window changes depending on the selection made here. The object types of the channel are only displayed in the object list if "enabled" is selected. They must then be linked with a group address. This parameter does not appear in the parameter window "Preselection A".

Function of preselection B	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
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The function of the preselection button is set via this parameter. The parameter window "Preselection B" changes, depending on the function selected here and the relevant parameters are displayed with default settings.

Upper / Lower contact	On / Off, Step = 1/1 On / Off, Step = 1/2 On / Off, Step = 1/4 On / Off, Step = 1/8 On / Off, Step = 1/16 On / Off, Step = 1/32 On / Off, Step = 1/64 Toggle / Toggle, adjustment = 1/1 Toggle / Toggle, adjustment = 1/4 Toggle / Toggle, adjustment = 1/8 Toggle / Toggle, adjustment = 1/16 Toggle / Toggle, adjustment = 1/32 Toggle / Toggle, adjustment = 1/64
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This parameter determines which switching value is sent when the upper and lower contacts are pressed briefly. The change in the brightness value that is carried out by a dimming telegram when a long push button action is detected is also set here. For example, in the setting "Step = 1/8", 8 dimming telegrams have to be sent in order to dim from 0% to 100%.

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Parameters	Settings
"On / Off, Step = x": A short operation of the upper contact generates an On telegram while an Off telegram is sent after the lower contact is pressed briefly. "Dim brighter" telegrams are sent if the upper contact is pressed for a long period while "Dim darker" telegrams are sent if the lower contact is pressed.	
"Toggle / Toggle, adjustment = x": The value in the switching object is inverted after a short push button action. The dimming function remains the same as for the setting "On / Off, Step = x".	
Long switch operation min.	0.3; 0.4; 0.5 ; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0 seconds
This parameter defines the time limit for a short/long rocker operation. If a rocker is pressed for longer than the set period, the push button detects a long rocker operation and sends dimming telegrams.	

Scene

Communication objects

Phys.Addr.	Program			
	no.	Object name	Function	Type
01.01.015	20 A1 Actuator-BCU Shutter 902302			
0	Scene, Preselection A	Recall	1 Bit	
1	Scene, Preselection A	Save	1 Bit	
2	Scene, Preselection B	Recall	1 Bit	
3	Scene, Preselection B	Save	1 Bit	
4	Scene, Preselection C	Recall	1 Bit	
5	Scene, Preselection C	Save	1 Bit	
6	Scene, Preselection D	Recall	1 Bit	
7	Scene, Preselection D	Save	1 Bit	
...

Obj	Object name	Function	Type	Flag
0	Scene, Preselection A	Recall	1 Bit	CT
The telegrams for recalling scenes are sent via the group addresses in this object. On receipt of the telegram, the scene module sends the stored brightness values of the scene via the group objects to the switch/dim actuators that have been addressed.				
1	Scene, Preselection A	Save	1 Bit	CT
The programming telegrams are set via the group address in this object to the corresponding scene module.				

Note

Objects 2-7 of preselection B-D correspond to the objects for the "Scene" function for preselection A and are therefore not described in detail.

Parameters

General Buttons	Preselection A	Preselection B	Preselection C	Preselection D	Shutter
Preselection B	enabled				
Function of preselection B	Scene (recall / program)				
Upper / Lower contact	0 / 1				
Start to save scene at	5.0 seconds				

The functions of parameter windows "Preselection A" to "Preselection D" are identical.

Parameters	Settings
Preselection B	enabled disabled
This parameter defines whether the preselection button should be enabled or disabled. The parameter window changes depending on the selection made here. The object types of the channel are only displayed in the object list if "enabled" is selected. They must then be linked with a group address. This parameter does not appear in the parameter window "Preselection A".	

Function of preselection B	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
----------------------------	---

The function of the preselection button is set via this parameter. The parameter window "Preselection B" changes, depending on the function selected here and the relevant parameters are displayed with default settings.

Upper / Lower contact	0 / 1 1 / 0
-----------------------	----------------

This parameter defines the sending signal when the rocker contacts are pressed.

In the setting "0 / 1", scene 1 is recalled with a "0" telegram when the upper contact is pressed briefly and is saved when the contact is pressed for a long period.

Scene 2 is recalled with a "1" telegram when the lower contact is pressed briefly and is saved when the contact is pressed for a long period.

In the setting "1 / 0", the assignment of scenes to the rocker contacts is inverted.

Start to save scene at	0.3; 0.4; 0.5; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0 ; 6.0; 7.0 seconds
------------------------	---

This parameter indicates the length of time that the rocker must be operated to distinguish between recalling the scene and switching to programming mode.

Shorter push button action than the set time: The scene is recalled.

Longer push button action than the set time: The scene is switched to programming mode.

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Function: 1-fold rocker with value preselection

General Buttons: Parameters

General Buttons	Rocker	Preselection	Preselection 2	Shutter
Rocker type	1-fold rocker with preselection of a value			
Function of LED	all LEDs off			

Parameters	Settings
Rocker type	4-fold rocker with preselection 1-fold rocker with preselection of a value The basic function of the push button can be selected here. The objects that are necessary for the setting are displayed in the object list, depending on the function that is selected here. The corresponding object types are also modified.
Function of LED	Value LED Status (via separate object) Orientation light (LED left) Orientation light (LED centre) all LEDs off The function of the LEDs is set via this parameter. "Value LED": The current value preselection is displayed in this mode. This setting is only available if a dimming function has been assigned to the rocker in the "Rocker" parameter window. "Status (via separate object)": An object is assigned to each LED in this operating mode. The object value "1" switches the LED on. The LEDs can thus display the status of the corresponding objects without these objects having to be linked to the rest of the objects. This means that the rocker can also display the status of another group of luminaires. If this setting is selected, the parameter window changes and the type of display can be selected for LEDs A-D. "Orientation light...": In this setting, the left and centre LEDs can be used as an orientation light. "all LEDs off": The LEDs are always switched off in this mode.

Switch

Communication objects

no.	Object name	Program		
		Function	Type	
01.01.015	20 A1 Actuator-BCU Shutter 902302			
0	Switch (upper rocker contact)	On	1 Bit	
1	Switch (lower rocker contact)	Off	1 Bit	
...

Obj	Object name	Function	Type	Flag
0	Switch (upper rocker contact)	On	1 Bit	CT
1	Switch (lower rocker contact)	Off	1 Bit	CT

These objects serve as a switching object for the rocker after a push button action. In the default setting, an On telegram is sent when the upper contact is pressed and an Off telegram is sent when the lower contact is pressed. If "Toggle" is selected, either an On or Off telegram is sent, depending on the current switching state.

Parameters

General Buttons	Rocker	Preselection	Preselection 2	Shutter
Function of rocker	Switch			
Upper contact	On			
Lower contact	Off			

Parameters	Settings
Function of rocker	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)

The function of the rocker is selected via this parameter. The parameter window "Rocker" changes depending on the function selected and the associated parameters are displayed with default settings.

Upper contact	On Off Toggle
Lower contact	On Off Toggle

This parameter defines the function of the upper and lower rocker contacts. In the default setting, pressing the upper contact sends an On telegram while an Off telegram is sent if the lower contact is pressed. If the setting "Toggle" is selected, either an On or Off telegram is sent (toggling) when a contact is pressed, depending on the current object status.

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Shutter

Communication objects

Phys.Addr.		Program	
no.	Object name	Function	Type
01.01.015	20 A1 Actuator-BCU Shutter 902302		
0	Louvres, Rocker	Open / Closed	1 Bit
1	Shutter, Rocker	Up / Down	1 Bit
...

Obj	Object name	Function	Type	Flag
0	Louvres, Rocker	Open / Closed	1 Bit	CT
1	Shutter, Rocker	Up / Down	1 Bit	CT

This object is used as a switching object for louvre adjustment after a short push button action. In the default setting, pressing the upper contact opens the louvres by a step with an Off telegram while pressing the lower contact closes the louvres by a step with an On telegram.

This object is used as a switching object for shutter movement after a long push button action. In the default setting, pressing the upper contact raises the shutter with an Off telegram while pressing the lower contact lowers the shutter with an On telegram. Pressing the rocker briefly while the shutter is moving causes the shutter to stop.

Parameters

General Buttons	Rocker	Preselection	Preselection 2	Shutter
Function of rocker	Shutter			
Upper / Lower contact	Up / Down			
Long switch operation min.	0.5 seconds			

Parameters	Settings
Function of rocker	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)

The function of the rocker is selected via this parameter. The parameter window "Rocker" changes depending on the function selected and the associated parameters are displayed with default settings.

Parameters	Settings
Upper / Lower contact	Up / Down Down / Up
Long switch operation min.	0.3; 0.4; 0.5 ; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0 seconds

This parameter defines the time limit for a short/long rocker operation. If a rocker is pressed for longer than the set period, the push button detects a long rocker operation.

Dimming with stop telegram

Communication objects

Phys.Addr.		Program	
no.	Object name	Function	Type
01.01.015	20 A1 Actuator-BCU Shutter 902302		
0	Dimming On / Off, Rocker	On / Off	1 Bit
1	Dimming, Rocker	Brighter / Darker	4 Bit
...

Obj	Object name	Function	Type	Flag
0	Dimming On / Off, Rocker	On / Off	1 Bit	CWT

This object serves as a switching object for the rocker after a short push button action. The default setting applies: pressing the upper contact briefly sends an On telegram while an Off telegram is sent when the lower contact is pressed. If the setting "Toggle / Toggle" is selected, either an On or Off telegram is sent (toggling), depending on the current object status.

Obj	Object name	Function	Type	Flag
1	Dimming, Rocker	Brighter / Darker	4 Bit	CWT

This object serves as a dimming object for the rocker and sends a dimming telegram after a long push button action. The following applies: a long operation of the upper contact sends a "Dim brighter" telegram while pressing the lower contact sends a "Dim darker" telegram. When the push button is released, a stop telegram is sent.

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Parameters

General Buttons	Rocker	Preselection	Preselection 2	Shutter
Function of rocker	Dimming with stop telegram			
Upper / Lower contact	On / Off			
Long switch operation min.	0.5 seconds			

Parameters	Settings
Function of rocker	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
The function of the rocker is selected via this parameter. The parameter window "Rocker" changes depending on the function selected and the associated parameters are displayed with default settings.	
Upper / Lower contact	On / Off Toggle / Toggle
This parameter defines the function of the upper and lower rocker contacts. In the setting "On / Off", pressing the upper contact sends an On telegram while an Off telegram is sent when the lower contact is pressed. If a long push button action is detected, pressing the upper rocker contact sends a "Dim brighter" telegram while pressing the lower contact sends a "Dim darker" telegram. When the push button is released, a stop telegram is sent.	
If the setting "Toggle / Toggle" is selected, either an On or Off telegram is sent (toggling) after a short push button action, depending on the current object status. The dimming function remains the same as for the setting "On / Off".	
Long switch operation min.	0.3; 0.4; 0.5 ; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0 seconds
This parameter defines the time limit for a short/long rocker operation. If a rocker is pressed for longer than the set period, the push button detects a long rocker operation and sends dimming telegrams.	

Dimming with cyclical sending

Communication objects

Phys.Addr.		Program		
no.	Object name	Function	Type	
01.01.015	20 A1 Actuator-BCU Shutter 902302			
0	Dimming On / Off, Rocker	On / Off / Toggle	1 Bit	
1	Dimming, Rocker	Brighter / Darker	4 Bit	
...

Obj	Object name	Function	Type	Flag
0	Dimming On / Off, Rocker	On / Off	1 Bit	CWT
This object serves as a switching object for the rocker after a short push button action. In the default setting, pressing the upper contact sends an On telegram while an Off telegram is sent when the lower contact is pressed.				
If the setting "Toggle / Toggle" is selected, either an On or Off telegram is sent (toggling), depending on the current switching state.				
1	Dimming, Rocker	Brighter / Darker	4 Bit	CWT
This object serves as a dimming object for the rocker and sends a dimming telegram after a long push button action. The following applies: pressing the upper contact for a long period sends a "Dim brighter" telegram while pressing the lower contact sends a "Dim darker" telegram at the interval specified in the parameter "Interval for cyclical sending".				

Parameters

General Buttons	Rocker	Preselection	Preselection 2	Shutter
Function of rocker	Dimming with cyclical sending			
Upper / Lower contact	On / Off, Step=1/8			
Long switch operation min.	0.5 seconds			
Interval for cyclical sending	0.5 seconds			

Parameters	Settings
Function of rocker	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
The function of the rocker is selected via this parameter. The parameter window "Rocker" changes depending on the function selected and the associated parameters are displayed with default settings.	

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Parameters	Settings
Upper / Lower contact	On / Off, Step = 1/1 On / Off, Step = 1/2 On / Off, Step = 1/4 On / Off, Step = 1/8 On / Off, Step = 1/16 On / Off, Step = 1/32 On / Off, Step = 1/64 Toggle / Toggle, adjustment = 1/1 Toggle / Toggle, adjustment = 1/4 Toggle / Toggle, adjustment = 1/8 Toggle / Toggle, adjustment = 1/16 Toggle / Toggle, adjustment = 1/32 Toggle / Toggle, adjustment = 1/64
	This parameter determines which switching value is sent when the upper and lower contacts are pressed briefly. The change in the brightness value that is carried out by a dimming telegram when a long push button action is detected is also set here. For example, in the setting "Step = 1/8", 8 dimming telegrams have to be sent in order to dim from 0% to 100%.
	"On / Off, Step = x": A short operation of the upper contact generates an On telegram while an Off telegram is sent after the lower contact is pressed briefly. "Dim brighter" telegrams are sent if the upper contact is pressed for a long period while "Dim darker" telegrams are sent if the lower contact is pressed.
	"Toggle / Toggle, adjustment = x": The value in the switching object is inverted after a short push button action. The dimming function remains the same as for the setting "On / Off, Step = x".
Long switch operation min.	0.3; 0.4; 0.5 ; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0 seconds
	This parameter defines the time limit for a short/long rocker operation. If a rocker is pressed for longer than the set period, the push button detects a long rocker operation and sends dimming telegrams.
Interval for cyclical sending	0.3; 0.4; 0.5 ; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0 seconds
	The repetition rate for cyclical sending after a long push button action is set here. The bus load should be taken into consideration when setting this interval.

Scene

Communication objects

Phys.Addr.	Program		
no.	Object name	Function	Type
01.01.015	20 A1 Actuator-BCU Shutter 902302		
0	Scene	Recall	1 Bit
1	Scene	Save	1 Bit
...

Obj	Object name	Function	Type	Flag
0	Scene	Recall	1 Bit	CT
The telegrams for recalling scenes are sent via the group address in this object. On receipt of the telegram, the scene module sends the stored brightness values of the scene via the group objects to the switch/dim actuators that have been addressed.				
1	Scene	Save	1 Bit	CT
The programming telegrams are sent via the group address in this object to the corresponding scene module.				

Parameters

General Buttons	Rocke	Preselection	Preselection 2	Shutter
Function of rocker	Scene (recall / program)			
Upper / Lower contact	0 / 1			
Start to save scene at	5.0 seconds			

Parameters	Settings
Function of rocker	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
The function of the rocker is selected via this parameter. The parameter window "Rocker" changes depending on the function selected and the associated parameters are displayed with default settings.	

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Parameters	Settings
Upper / Lower contact	0 / 1 1 / 0
	This parameter defines the sending signal when the rocker contacts are pressed. "0 / 1": When the upper contact is pressed briefly, scene 1 is set with a "0" telegram by the scene modules that have been addressed. In the same way, scene 2 is set when the lower contact is pressed briefly. After a long push button action, these scene modules are requested on receipt of a telegram to scan the current brightness values and switching states of the actuators and to store them in the corresponding scene. "1 / 0": The assignment of scenes to the rocker contacts is inverted in this setting.
Start to save scene at	0.3; 0.4; 0.5; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0 ; 6.0; 7.0 seconds
	This parameter indicates the length of time that the rocker must be operated to distinguish between recalling the scene and switching to programming mode. Shorter push button action than the set time: The scene is recalled. Longer push button action than the set time: The scene is switched to programming mode.

Preselection**Communication objects**

Phys.Addr.		Program		
no.	Object name	Function	Type	
01.01.015	20 A1 Actuator-BCU Shutter 902302			
...
2	Value	Preselection value (1 byte)	1 Byte	
...

Obj	Object name	Function	Type	Flag
2	Value	Preselection value (1 byte)	1 Byte	CWT
When a preselection button or a combination of preselection buttons are pressed, a value telegram is sent <u>directly</u> via the group address in this object.				

Parameters

General Buttons	Rocker	Preselection	Preselection 2	Shutter
Value on preselection A (0-255)		51		
Value on preselection B (0-255)		102		
Value on preselection C (0-255)		153		
Value on preselection D (0-255)		204		
Value on preselection A B (0-255)		75		
Value on preselection A C (0-255)		101		
Value on preselection A D (0-255)		126		
Value on preselection B C (0-255)		127		
Value on preselection B D (0-255)		152		
Value on preselection C D (0-255)		179		

General Buttons	Rocker	Preselection	Preselection 2	Shutter
Value on preselection A B C (0-255)		103		
Value on preselection A B D (0-255)		128		

Parameters	Settings
Value on preselection A (0-255)	103
The 8 bit values that are entered here are sent when the corresponding preselection button or combination of preselection buttons are pressed. The range covers the values 0 to 255 and 0 to 100%.	

The functions and parameters of parameter windows "Preselection" and "Preselection 2" are identical.

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Assigning parameters to the shutter output

Communication objects

Phys.Addr.		Program		
no.	Object name	Function	Type	
01.01.015	20 A1 Actuator-BCU Shutter 902302			
...
12	Shutter	Down / Up	1 Bit	
13	Louvres	Open / Closed	1 Bit	
14	Wind alarm	Shutter Up	1 Bit	
15	Shutter using dimming	Up/Down using Brighter/Darker	4 Bit	

Obj	Object name	Function	Type	Flag
12	Shutter	Up / Down	1 Bit	CW
		Shutter movement (Up / Down) is initiated with this object. The shutter is raised on receipt of a logic "0" and lowered on receipt of a logic "1".		
13	Louvres	Open / Closed	1 Bit	CW
		This object serves for louvre adjustment. The louvres are rotated downwards on receipt of a logic "0" and rotated upwards on receipt of a logic "1".		
14	Wind alarm	Shutter Up	1 Bit	CW
		This object can be linked with a safety address e.g. from a wind sensor. In the idle state, the sensor sends a logic "0" at cyclic intervals. In the event of a wind alarm, it sends a logic "1". In this case, the shutter switch moves the shutter into the safety position and blocks the operation of the shutter. This also happens if the wind sensor fails and is therefore no longer able to send cyclical "0" signals. This object is only available if the parameter "Safety (e.g. wind alarm)" has been set to "enabled".		
15	Shutter using dimming	Up/Down using Brighter/Darker	4 Bit	CW
		A dimming sensor can control a shutter via this object, whereby dimming brighter raises the shutter and dimming darker lowers the shutter. All the dimming telegrams are interpreted as an adjustment by 100%, since the actuator does not know the current position. For this reason, it is only advisable to configure the dimming sensor for "Dimming with stop telegram".		
		This object is only available if the parameter "Shutter control using dim. command" has been set to "enabled". The object values of "Shutter" and "Louvres" are also inverted. This means that the object for the shutter that is controlled by a short push button action can be linked with the "Louvres" object. The louvres are thus opened by a brief operation of the upper contact (upper -> brighter; lower -> darker).		

Parameters

General Buttons	Rocker	Preselection	Preselection 2	Shutter
Function	Shutter			
Function of louvres (step)	using object, without reverse step after stop			
Time for shutter movement	12 minutes			
Time for louvres adjustment	200 milliseconds			
Pause on change in direction	700 milliseconds			
Shutter control using dim. command	enabled (Up/Down are changed)			
Behaviour on bus voltage failure	move shutter up			
Safety (e.g. wind alarm)	enabled			
Safety position of shutter	Up			
Monitoring time	12 minutes			

Parameters	Settings
Function	Shutter Roller blind
	The function of the shutter switch is set via this parameter. The parameter window changes depending on the function selected and the relevant parameters are displayed with default settings.
Function of louvres (step)	using object, without reverse step after stop using object, with reverse step after stop using shutter up/down with stop telegram
	The reaction to the receipt of a louvre adjustment telegram at the louvre object is set via this parameter. "using object, without reverse step after stop": The louvre adjustment command is carried out without a reverse step and the relay is opened once the period for louvre adjustment has elapsed. "using object, with reverse step after stop": The louvre adjustment command is carried out with a reverse step and the relay is opened once the period for louvre adjustment has elapsed. In this setting, the parameter for setting the delay time is displayed. "using shutter up/down with stop telegram": The louvre adjustment telegram is interpreted as a stop telegram for halting the shutter movement. The automatic opening of the relays is deactivated. In this setting, the louvre object changes and is displayed as a stop object.
Time for shutter movement	10; 30 seconds 1; 2; 3; 4; 5; 6; 7; 8; 10; 12; 15; 20; 25; 30; 35; 40; 60; 90; 120 minutes
	This parameter indicates the duration of the shutter movement before the shutter is automatically switched off. It is not displayed if the parameter "Function of louvres (step)" is set to "using shutter up/down with stop telegram".

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Parameters	Settings
Time for louvres adjustment	50; 80; 100; 120; 140; 160; 180; 200 ; 220; 240; 260; 280; 300; 360; 400; 500; 700; 800; 1000 milliseconds
	This parameter defines the period for louvre adjustment. It is not displayed if the parameter "Function of louvres (step)" is set to "using shutter up/down with stop telegram".
Delay time on a change in direction	50; 80; 100; 120; 140; 160; 180; 200 ; 220; 240; 260; 280; 300; 360; 400; 500; 700; 800; 1000 milliseconds
	The duration of a reverse step is defined using this parameter. It is not displayed if the parameter "Function of louvres (step)" is set to "using shutter up/down with stop telegram".
Pause on change in direction	10 milliseconds 40 milliseconds 70 milliseconds 100 milliseconds 200 milliseconds 400 milliseconds 700 milliseconds 1 second 2 seconds 4 seconds
	The pause on change in direction is set via this parameter. The shutter remains stationary for the duration of the period. Note: The parameter must be set to the time given by the manufacturer of the shutter (generally longer than 500 ms).
Shutter control using dim. command	disabled (standard) enabled (Up/Down are changed)
	This parameter controls whether a 4 bit object is made available for shutter control. It is therefore possible for a dimming sensor to control a shutter, whereby dimming brighter raises the shutter and dimming darker lowers the shutter. All the dimming telegrams are interpreted as an adjustment by 100% since the actuator does not know the current position. For this reason, it is only advisable to configure the dimming sensor for "Dimming with stop telegram". If the setting "enabled" is selected, the corresponding object is displayed in the object list.
Behaviour on bus voltage failure	move shutter up move shutter down STOP
	This parameter indicates the behaviour of the shutter on bus voltage failure. In the event of bus voltage failure, the pause on change in direction that is normally observed is not taken into consideration.
	Note: When operating heavy shutter motors, the setting "STOP" should be selected in order to protect the relay contacts.

Parameters	Settings
Safety (e.g. wind alarm)	disabled enabled
	The safety function can be enabled or disabled via this parameter. The parameter must be enable when a wind sensor is used.
Safety position of shutter	Up
	This parameter indicates the limit position of the shutter in the event of a safety alarm. The parameter only appears if the safety function has been enabled. The safety position cannot be changed.
Monitoring time	12 minutes
	The monitoring time is specified with this parameter. The safety object expects to receive cyclical telegrams ("0" signals). If the shutter actuator does not receive a signal within the monitoring period, the safety function is initiated.

Roller blind

Communication objects

Phys.Addr.	Program			Type
	no.	Object name	Function	
01.01.015	20 A1 Actuator-BCU Shutter 902302			
...
12	Roller blinds	Up / Down	1 Bit	
13	Roller blinds	STOP	1 Bit	
14	Wind alarm	Roller blinds up	1 Bit	
15	Roller blinds using dim. command	Up/Down using Brighter/Darker	4 Bit	

Obj	Object name	Function	Type	Flag
12	Roller blinds	Up / Down	1 Bit	CW
		The movement of the roller blind (Up / Down) is initiated with this object. The blind is raised on receipt of a logic "0" and lowered on receipt of a logic "1".		
13	Roller blinds	STOP	1 Bit	CW
		This object serves as a receiving object for stopping the movement of the roller blind.		
14	Wind alarm	Roller blinds up	1 Bit	CW
		This object can be linked with a safety address e.g. from a wind sensor. In the idle state, the sensor sends a logic "0" at cyclic intervals. In the event of a wind alarm, it sends a logic "1". In this case, the shutter switch moves the roller blind into the set safety position (Up or Down) and blocks the operation of the blind. This also happens if the wind sensor fails and is therefore no longer able to send cyclical "0" signals. This object is only available if the parameter "Safety (e.g. wind alarm)" has been set to "enabled".		

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Obj	Object name	Function	Type	Flag
15	Roller blinds using dim. command	Up/Down using Brighter/Darker	4 Bit	CW
<p>A dimming sensor can control a roller blind via this object, whereby dimming brighter raises the blind and dimming darker lowers the blind. All the dimming telegrams are interpreted as an adjustment by 100%, since the actuator does not know the current position. For this reason, it is only advisable to configure the dimming sensor for "Dimming with stop telegram".</p> <p>This object is only available if the parameter "Roller blinds control using dim. command" has been set to "enabled". The object value of the "Roller blinds" object is also inverted. This means that the object for the roller blind that is controlled by a short push button action can be linked with the "Roller blinds" object. The blind is thus raised by a brief operation of the upper contact (upper -> brighter; lower -> darker).</p>				

Parameter

General Buttons	Rocker	Preselection	Preselection 2	Roller blinds
Function				
Roller blinds				
Automatically stop roller blinds movement	enabled			
Time for roller blinds movement	12 minutes			
Pause on change in direction	700 milliseconds			
Roller blinds control using dim. command	enabled (Up/Down are changed)			
Behaviour on bus voltage failure	move shutter up			
Safety (e.g. wind alarm)	enabled			
Safety position of roller blinds	Up			
Monitoring time	12 minutes			

Parameters	Settings
Function	Shutter Roller blind
The function of the shutter switch is set via this parameter. The parameter window changes depending on the function selected and the relevant parameters are displayed with default settings.	
Automatically stop roller blinds movement	disabled enabled
This parameter indicates whether the relay is automatically opened once the travel time for the roller blinds has elapsed. If "enabled" is selected, the parameter "Time for roller blinds movement" appears for setting the travel time.	
Time for roller blinds movement	10; 30 seconds 1; 2; 3; 4; 5; 6; 7; 8; 10; 12 ; 15; 20; 25; 30; 35; 40; 60; 90; 120 minutes
This parameter indicates the duration of the roller blind movement before the blind is automatically switched off. It is not displayed if the parameter "Automatically stop roller blinds movement" is set to "disabled".	

Parameters	Settings
Pause on change in direction	10 milliseconds 40 milliseconds 70 milliseconds 100 milliseconds 200 milliseconds 400 milliseconds 700 milliseconds 1 second 2 seconds 4 seconds

The pause on change in direction is set via this parameter. The roller blind remains stationary for the duration of this period.

Note: The parameter must be set to the time given by the manufacturer of the roller blind (generally longer than 500 ms).

Roller blinds control using dim. command	disabled (standard) enabled (Up/Down are changed)
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This parameter controls whether a 4 bit object is made available for controlling the roller blind. It is therefore possible for a dimming sensor to control a roller blind, whereby dimming brighter raises the blind and dimming darker lowers the blind. All the dimming telegrams are interpreted as an adjustment by 100% since the actuator does not know the current position. For this reason, it is only advisable to configure the dimming sensor for "Dimming with stop telegram". If the setting "enabled" is selected, the corresponding object is displayed in the object list.

Behaviour on bus voltage failure	move shutter up move shutter down STOP
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This parameter indicates the behaviour of the roller blind on bus voltage failure.

Note: When operating heavy roller blind motors, the setting "STOP" should be selected in order to protect the relay contacts.

Safety (e.g. wind alarm)	disabled enabled
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The safety function can be enabled or disabled via this parameter. The parameter must be enable when a wind sensor is used.

Safety position of roller blind	Up Down
--	-------------------

This parameter indicates the limit position of the roller blind in the event of a safety alarm. The parameter only appears if the safety function has been enabled.

Monitoring time	12 minutes
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The safety object expects to receive cyclical telegrams ("0" signals). If these telegrams fail to appear, the safety function is triggered and the roller blind is moved to the safety position. The monitoring time is specified with this parameter. If the shutter actuator does not receive a signal within the monitoring period, the safety function is initiated.

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Times

The times cannot be kept to exactly for reasons associated with the internal operating system. The following tables indicate the time bands that are applied.

Reversal in direction of movement

Time [ms]	Time from [ms]		Time to [ms]
10	9.5	-	10.0
20	19.5	-	20.0
40	39.5	-	40.0
70	69.5	-	70.0
100	99.5	-	100.0
200	192.0	-	200.0
400	392.0	-	400.0
700	696.0	-	704.0
1,000	992.0	-	1000.0
2,000	1992.0	-	2000.0
4,000	3900.0	-	4030.0

Time for louvre adjustment

Time [ms]	Time from [ms]	Time to [ms]
50	49.5	- 50.0
60	59.5	- 60.0
70	69.5	- 70.0
80	79.5	- 80.0
100	99.5	- 100.0
120	119.5	- 120.0
140	136.0	- 144.0
160	152.0	- 160.0
180	176.0	- 184.0
200	192.0	- 200.0
220	216.0	- 224.0
240	232.0	- 240.0
260	256.0	- 264.0
280	272.0	- 280.0
300	296.0	- 304.0
330	320.0	- 328.0
360	352.0	- 360.0
400	392.0	- 400.0
500	496.0	- 504.0
600	592.0	- 600.0
700	696.0	- 704.0
800	792.0	- 800.0
1,000	992.0	- 1000.0

Travel time for shutters and roller blinds

Time [min]	Time [ms]		Time [min]	
	from	- to	from	- to
10,000	9880.0	- 10010.0	0.2	- 0.2
30,000	29900.0	- 30030.0	0.5	- 0.5
1 60,000	58800.0	- 60900.0	1.0	- 1.0
2 120,000	117600.0	- 119700.0	2.0	- 2.0
3 180,000	178500.0	- 180600.0	3.0	- 3.0
4 240,000	237300.0	- 239400.0	4.0	- 4.0
5 300,000	298200.0	- 300300.0	5.0	- 5.0
6 360,000	357000.0	- 359100.0	6.0	- 6.0
7 420,000	417900.0	- 420000.0	7.0	- 7.0
8 480,000	478800.0	- 480900.0	8.0	- 8.0
10 600,000	561000.0	- 594000.0	9.4	- 9.9
12 720,000	693000.0	- 726000.0	11.6	- 12.1
15 900,000	858000.0	- 891000.0	14.3	- 14.9
20 1,200,000	1155000.0	- 1188000.0	19.3	- 19.8
25 1,500,000	1452000.0	- 1485000.0	24.2	- 24.8
30 1,800,000	1782000.0	- 1815000.0	29.7	- 30.3
35 2,100,000	2079000.0	- 2112000.0	34.7	- 35.2
40 2,400,000	2376000.0	- 2409000.0	39.6	- 40.2
60 3,600,000	3564000.0	- 3597000.0	59.4	- 60.0
90 5,400,000	5379000.0	- 5412000.0	89.7	- 90.2
120 7,200,000	7161000.0	- 7194000.0	119.4	- 119.9

Safety times

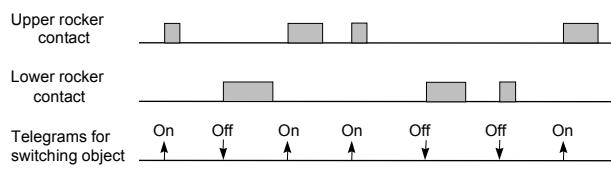
Time [min]	Time [ms]	Time from [ms]		Time to [ms]		Time from [min]	Time to [min]
		from	- to	from	- to		
2	120,000	132000.0	- 165000.0	2.2	- 2.8		
4	240,000	264000.0	- 297000.0	4.4	- 5.0		
8	480,000	495000.0	- 528000.0	8.3	- 8.8		
12	720,000	726000.0	- 759000.0	12.1	- 12.7		
20	1,200,000	1221000.0	- 1254000.0	20.4	- 20.9		
30	1,800,000	1815000.0	- 1848000.0	30.3	- 30.8		
45	2,700,000	2706000.0	- 2739000.0	45.1	- 45.7		
60	3,600,000	3630000.0	- 3663000.0	60.5	- 61.1		

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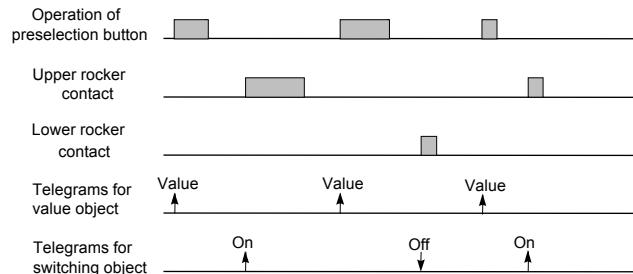
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**Timing diagrams:
Examples for a rocker / preselection channel**

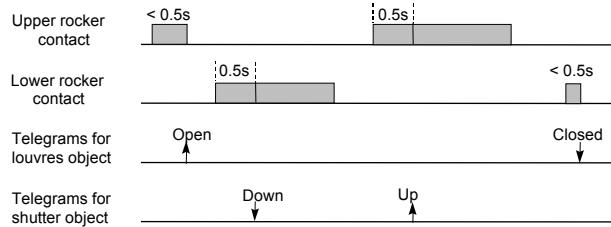
**Configured for switch function:
upper "On", lower "Off"**



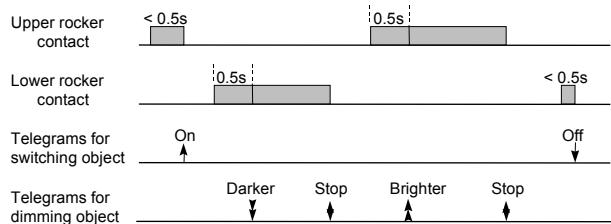
**Configured for switch function:
upper "On", lower "Off" with value preselection
(only for 1-fold rocker with preselection of a value)**



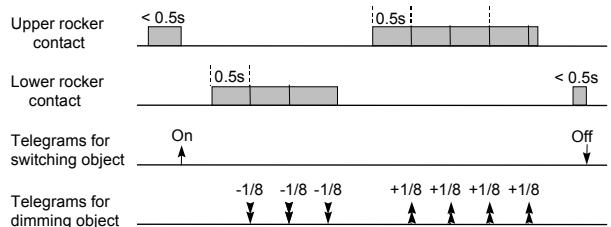
Configured for shutter: upper "Up", lower "Down"



Configured for dimming with cyclical sending



Configured for dimming with cyclical sending



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Notes: