

## 20 S4 rocker (BCU2) 907602

### Use of the application program

Product family: Push button  
 Product type: Push button, 4-fold  
 Manufacturer: Siemens

Name: Pushbutton UP 245 quadruple, neutral  
 DELTA profil  
 Order-no.: 5WG1 245-2AB\_1

Name: Pushbutton UP 246, quadruple, with symbols  
 DELTA profil  
 Order-no.: 5WG1 246-2AB\_1

Name: Pushbutton UP 287 quadruple, neutral  
 DELTA style  
 Order-no.: 5WG1 287-2AB\_1

### Functional description

The application program "20 S4 rocker (BCU2) 907602" provides parameters to switching (on/off/toggle/value), dimming (on/off or brighter/darker), controlling shutters, skylights and security gates etc., recalling/programming scenes and status display via LEDs with the pushbutton quadruple.

#### Switching

There is a separate communication object available for each rocker contact of the four rockers. It is therefore possible to switch up to eight different groups of luminaires. It is also possible to set via parameters which switch function (on/off/toggle) is carried out when the rocker is pressed or released. Each rocker contact can also be assigned an 8 bit value. The corresponding value is sent immediately when the rocker is pressed. It is therefore possible for a dimming actuator for example to be set to a defined value.

#### Dimming

A distinction is made between a long and short pushbutton action. A brief operation of the rocker sends a corresponding switching command (on or off). If the pushbutton is pressed and held down 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 pushbutton 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 pushbutton 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 short and long pushbutton action. If the rocker is pressed briefly, a switching telegram is sent which adjusts the louvres or stops any shutter movement. After a long pushbutton action, the shutters are either raised or lowered. When assigning parameters, it is possible to choose between "Upper contact: Up, Lower contact: Down" or vice versa. Skylights and security gates for example can be controlled in both directions using this parameter. 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 brightness values or switching states to the individual groups of the respective scene. Two scenes can be recalled by pressing the 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 with this type of function must also be used in the scene module. Before programming a scene, the actuators concerned must be set to the required brightness values or 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 pushbutton action.

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**LED**

The pushbutton has five LEDs. There are four communication objects available for the four upper LEDs of the pushbutton. They can therefore either be used to display switching states or as an orientation light if the corresponding parameters have been selected. The centre LED serves as an orientation light.

**Initialisation signal**

It is not possible to carry out an initialisation signal (on bus voltage recovery). You should ensure that the pushbutton is always in the neutral position (i.e. not pressed) on bus voltage recovery. If the pushbutton is not in this position on bus voltage recovery, the application program will then send the corresponding signal. This could however not yet be understood by other bus devices as all the devices in the system are loaded up (ready for operation) at different rates.

Maximum number of group addresses: 38  
 Maximum number of associations: 38

**Note**

The view of the communication objects can be arranged individually i.e. this view can vary depending on the parameters selected.

**Switch**

**Communication objects**

Phys. Addr.		Program		
no.	Object name	Function	Type	
01.01.006 20 S4 Rocker (BCU2) 907602				
0	Switch, Rocker A (upper rocker contact)	On	1 Bit	
1	Switch, Rocker A (lower rocker contact)	Off	1 Bit	
2	Switch, Rocker B (upper rocker contact)	On	1 Bit	
3	Switch, Rocker B (lower rocker contact)	Off	1 Bit	
4	Switch, Rocker C (upper rocker contact)	On	1 Bit	
5	Switch, Rocker C (lower rocker contact)	Off	1 Bit	
6	Switch, Rocker D (upper rocker contact)	On	1 Bit	
7	Switch, Rocker D (lower rocker contact)	Off	1 Bit	

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

Obj	Object name	Function	Type	Flag
1	Switch, Rocker A (lower rocker contact)	Off	1 Bit	CT

The switching telegrams of rocker A are sent via the group addresses in this object. It is possible to set via parameters which switching state is generated when the rocker is pressed or released. If "Toggle" is selected, the central addresses that are also contained in the actuator must be entered in order to synchronise the sensor.

**Note**

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

**Parameters**

**Note**

The function and parameters of rockers A - D are identical.

Parameters	Settings
Function of rocker A (outer left rocker)	Switch Shutter Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
The function of the rocker is set via this parameter. The parameter window "Rocker A" changes depending on the function that is selected here and the relevant parameters are displayed with default settings.	
Upper contact	Off <b>On</b> Toggle 8-bit Value press: On, release: Off press: Off, release: On
Lower contact	Off On Toggle 8-bit Value press: On, release: Off press: Off, release: On

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Parameters	Settings
<p>This parameter determines which switching value is sent via the corresponding switching object when the upper and lower rocker contacts are pressed or released.</p> <p>"On" or "Off": Pressing the contact generates an On or Off telegram. There is no evaluation when the rocker is released.</p> <p>"Toggle": The value in the switching object is inverted when the contact is pressed. There is no evaluation when the contact is released.</p> <p>"8-bit Value": An adjustable 8 bit value is sent when the contact is pressed. When this setting is selected, an additional parameter is displayed where the value can be defined. There is no evaluation when the contact is released.</p> <p>"press: On, release: Off": An On telegram is generated when the contact is pressed while releasing the contact produces an Off telegram.</p> <p>"press: Off, release: On": An Off telegram is generated when the contact is pressed while releasing the contact produces an On telegram.</p>	

**Note**

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

**Parameters**

LED	Rocker A	Rocker B	Rocker C	Rocker D
Function of rocker A (outer left rocker)		Dimming with stop telegram		
Upper / Lower contact		On / Off		
Long switch operation min.		0.5 seconds		

**Note**

The function and parameters of rockers A-D are identical.

**Dimming with stop telegram**

**Communication objects**

Phys. Addr.		Program		
no.	Object name	Function	Type	
01.01.006 20 S4 Rocker (BCU2) 907602				
0	Dimming On / Off, Rocker A	On / Off	1 Bit	
1	Dimming, Rocker A	Brighter / Darker	4 Bit	
2	Dimming On / Off, Rocker B	On / Off	1 Bit	
3	Dimming, Rocker B	Brighter / Darker	4 Bit	
4	Dimming On / Off, Rocker C	On / Off	1 Bit	
5	Dimming, Rocker C	Brighter / Darker	4 Bit	
6	Dimming On / Off, Rocker D	On / Off	1 Bit	
7	Dimming, Rocker D	Brighter / Darker	4 Bit	

Parameters	Settings
Function of rocker A (outer left rocker)	Switch Shutter <b>Dimming with stop telegram</b> Dimming with cyclical sending Scene (recall / program)
<p>The function of the rocker is set via this parameter. The parameter window "Rocker A" changes depending on the function that is selected here and the relevant parameters are displayed with default settings.</p>	
Upper / Lower contact	On / Off Toggle / Toggle
<p>This parameter determines the switching value that is sent via the object when the upper and lower rocker contacts are pressed.</p> <p>"On / Off": Pressing the upper contact generates an On telegram while an Off telegram is sent when the lower contact is pressed.</p> <p>"Toggle / Toggle": The value in the switching object is inverted when either contact is pressed.</p>	
Long switch operation min.	0.3; 0.4; <b>0.5</b> ; 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
<p>This parameter defines the time limit for a short/long rocker operation. If the rocker is pressed for longer than the set period, the pushbutton detects a long rocker operation and sends dimming telegrams.</p>	

Obj	Object name	Function	Type	Flag
0	Dimming On / Off, Rocker A	On / Off	1 Bit	CT
<p>The switching telegrams of rocker A are sent via the group addresses in this object. It is possible to set via parameters which switching state is generated when the rocker is pressed or released. If "Toggle" is selected, the central addresses that are also contained in the actuator must be entered in order to synchronise the sensor.</p>				
1	Dimming, Rocker A	Brighter / Darker	4 Bit	CT
<p>This object serves as a dimming object for rocker A and sends a dimming telegram after a long pushbutton action. It is possible to set via parameters which dimming telegrams are generated when the upper or lower rocker contact is pressed.</p>				

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**Dimming with cyclical sending**

**Communication objects**

Phys. Addr.		Program		
no.	Object name	Function	Type	
01.01.006	20 S4 Rocker (BCU2) 907602			
0	Dimming On / Off / Toggle, Rocker A	On / Off / Toggle	1 Bit	
1	Dimming, Rocker A	Brighter / Darker	4 Bit	
2	Dimming On / Off / Toggle, Rocker B	On / Off / Toggle	1 Bit	
3	Dimming, Rocker B	Brighter / Darker	4 Bit	
4	Dimming On / Off / Toggle, Rocker C	On / Off / Toggle	1 Bit	
5	Dimming, Rocker C	Brighter / Darker	4 Bit	
6	Dimming On / Off / Toggle, Rocker D	On / Off / Toggle	1 Bit	
7	Dimming, Rocker D	Brighter / Darker	4 Bit	

Obj	Object name	Function	Type	Flag
0	Dimming On / Off / Toggle, Rocker A	On / Off / Toggle	1 Bit	CWT
<p>The switching telegrams of rocker A are sent via the group addresses in this object. It is possible to set via parameters which switching state is generated when the rocker is pressed or released. If "Toggle" is selected, the central addresses that are also contained in the actuator must be entered in order to synchronise the sensor.</p>				
1	Dimming, Rocker A	Brighter / Darker	4 Bit	CT
<p>This object serves as a dimming object for rocker A and sends a dimming telegram after a long pushbutton action. It is possible to set via parameters which dimming telegrams are generated when the upper or lower rocker contact is pressed.</p>				

**Note**

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

**Parameters**

LED	Rocker A	Rocker B	Rocker C	Rocker D
Function of rocker A (outer left 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		

**Note**

The function and parameters of rockers A-D are identical.

Parameters	Settings
<b>Function of rocker A (outer left rocker)</b>	Switch Shutter Dimming with stop telegram <b>Dimming with cyclical sending</b> Scene (recall / program)
<p>The function of the rocker is set via this parameter. The parameter window "Rocker A" changes depending on the function that is selected here and the relevant parameters are displayed with default settings.</p>	
<b>Upper / Lower contact</b>	On / Off, Step = 1/1 On / Off, Step = 1/2 On / Off, Step = 1/4 <b>On / Off, Step = 1/8</b> 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
<p>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 pushbutton 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 pushbutton action. The dimming function remains the same as for the setting "On / Off, Step = x".</p>	
<b>Long switch operation min.</b>	0.3; 0.4; <b>0.5</b> ; 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
<p>This parameter defines the time limit for a short/long rocker operation. If the rocker is pressed for longer than the set period, the pushbutton detects a long rocker operation and sends dimming telegrams.</p>	

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Parameters	Settings
<b>Interval for cyclical sending</b>	0.3; 0.4; <b>0.5</b> ; 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 pushbutton action is set here. The bus load should be taken into consideration when setting this interval.	

### Shutter

#### Communication objects

Phys. Addr.	Program	no.	Object name	Function	Type
		01.01.006	20 S4 Rocker (BCU2) 907602		
<input type="checkbox"/>		0	Louvres, Rocker A	Open / Closed	1 Bit
<input type="checkbox"/>		1	Shutter, Rocker A	Up / Down	1 Bit
<input type="checkbox"/>		2	Louvres, Rocker B	Open / Closed	1 Bit
<input type="checkbox"/>		3	Shutter, Rocker B	Up / Down	1 Bit
<input type="checkbox"/>		4	Louvres, Rocker C	Open / Closed	1 Bit
<input type="checkbox"/>		5	Shutter, Rocker C	Up / Down	1 Bit
<input type="checkbox"/>		6	Louvres, Rocker D	Open / Closed	1 Bit
<input type="checkbox"/>		7	Shutter, Rocker D	Up / Down	1 Bit

Obj	Object name	Function	Type	Flag
<b>0</b>	Louvres, Rocker A	Open / Closed	1 Bit	CT
This object sends a switching command for louvre adjustment when rocker A is pressed briefly. It is possible to set via parameters which switching command is generated when the rocker is pressed.				
<b>1</b>	Shutter, Rocker A	Up / Down	1 Bit	CT
When rocker A is pressed for a long period, this object sends a switching command to lower or raise the shutters. It is possible to set via parameters which switching command is generated when the upper or lower rocker contacts are pressed.				

### Note

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

### Parameters

LED | **Rocker A** | Rocker B | Rocker C | Rocker D

Function of rocker A (outer left rocker) Shutter

Upper / Lower contact Up / Down

Long switch operation min. 0.5 seconds

### Note

The function and parameters of rockers A-D are identical.

Parameters	Settings
<b>Function of rocker A (outer left rocker)</b>	Switch <b>Shutter</b> Dimming with stop telegram Dimming with cyclical sending Scene (recall / program)
The function of the rocker is set via this parameter. The parameter window "Rocker A" changes depending on the function that is selected here and the relevant parameters are displayed with default settings.	
<b>Upper / Lower contact</b>	<b>Up / Down</b> Down / Up
This parameter defines the function of the upper and lower rocker contacts. In the default setting, pressing the upper contact briefly opens the louvres by a step with an Off telegram. Pressing the lower contact closes the louvres by a step with an Off telegram. Pressing the upper contact for a long period raises the shutter with an Off telegram while pressing the lower contact lowers the shutter with an On telegram.	
<b>Long switch operation min.</b>	0.3; 0.4; <b>0.5</b> ; 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 the rocker is pressed for longer than the set period, the pushbutton detects a long rocker operation.	

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**Scene**

**Communication objects**

Phys. Addr.		Program		
no.	Object name	Function	Type	
01.01.006	20 S4 Rocker (BCU2) 907602			
0	Scene, Rocker A	Recall	1 Bit	
1	Scene, Rocker A	Save	1 Bit	
2	Scene, Rocker B	Recall	1 Bit	
3	Scene, Rocker B	Save	1 Bit	
4	Scene, Rocker C	Recall	1 Bit	
5	Scene, Rocker C	Save	1 Bit	
6	Scene, Rocker D	Recall	1 Bit	
7	Scene, Rocker D	Save	1 Bit	

Obj	Object name	Function	Type	Flag
0	Scene, Rocker A	Recall	1 Bit	CT
The telegrams for recalling the scene 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, Rocker A	Save	1 Bit	CT
The programming telegrams are sent via the group address in this object to the corresponding scene module.				

**Note**

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

**Parameters**

LED	Rocker A	Rocker B	Rocker C	Rocker D
Function of rocker A (outer left rocker)		Scene (recall / save)		
Upper / Lower contact		0 / 1		
Start to save scene at		5.0 seconds		

**Note**

The function and parameters of rockers A-D are identical.

Parameters	Settings
Function of rocker A (outer left rocker)	Switch Shutter Dimming with stop telegram Dimming with cyclical sending <b>Scene (recall / program)</b>
The function of the rocker is set via this parameter. The parameter window "Rocker A" changes depending on the function that is 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. "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 with a "1" telegram when the lower contact is pressed briefly. After a long pushbutton 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 scenes. "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 pushbutton action than the set time: The scene is recalled. Longer pushbutton action than the set time: The scene is switched to programming mode.	

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## LED

## Communication objects

Phys. Addr.		Program		
no.	Object name	Function	Type	
01.01.006	20 S4 Rocker (BCU2) 907602			
8	LED outer left	Status	1 Bit	
9	LED left	Status	1 Bit	
10	LED right	Status	1 Bit	
11	LED outer right	Status	1 Bit	

Obj	Object name	Function	Type	Flag
8	LED outer left	Status	1 Bit	CRW
9	LED left	Status	1 Bit	CRW
10	LED right	Status	1 Bit	CRW
11	LED outer right	Status	1 Bit	CRW

The switching telegrams are received via the group addresses in these objects when the 4 LEDs are used for status display. If the parameter settings "On" or "Off" are selected, these objects are not displayed and have no function.

## Parameters

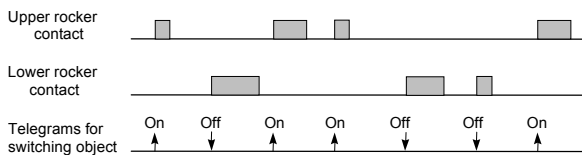
LED	Rocker A	Rocker B	Rocker C	Rocker D
Orientation light (LED)	Off			
Function of outer left LED	Off			
Function of left LED	Off			
Function of right LED	Off			
Function of outer right LED	Off			

Parameters	Settings
Orientation light (LED)	Off On
Using this parameter, the lower LED can either be switched off or used as an orientation light.	
Function of outer left LED	Off On Status (via separate object) Inverted (via separate object)
Function of left LED	Off On Status (via separate object) Inverted (via separate object)
Function of right LED	Off On Status (via separate object) Inverted (via separate object)
Function of outer right LED	Off On Status (via separate object) Inverted (via separate object)
With these parameters, the LEDs can be parameterised as an orientation light or for status display. When the LEDs are used for status display, there is a separate object available for each LED. The status can also be displayed as inverted.	

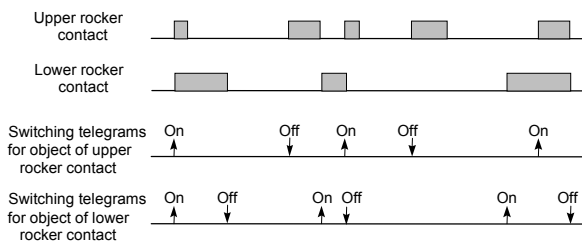
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Timing diagrams: Examples for a rocker

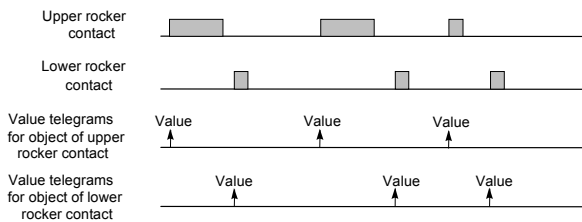
1. Configured for switch function:  
upper "On", lower "Off"



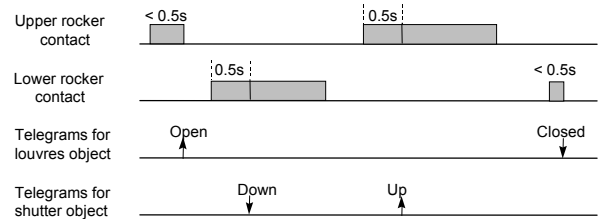
2. Configured for switch function:  
upper "Toggle", lower "press: On, release: Off"



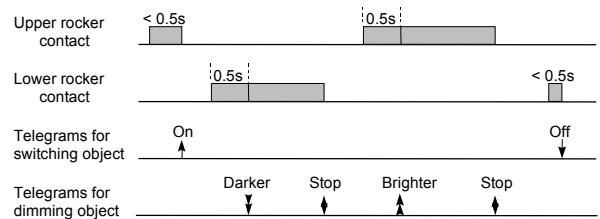
3. Configured for switch function:  
upper "8-bit Value", lower "8-bit Value"



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



5. Configured for dimming with stop telegram



6. Configured for dimming with cyclical sending

