20 S1 rocker (BCU2) 907402

Use of the application program

Product family:	Push Button
Product type:	Push Button, single
Manufacturer:	Siemens

Name:	Push Button UP 241 single DELTA profil
Order-no.:	5WG1 241-2AB_1

Name:	Push Button UP 242 single DELTA profil
Order-no.:	5WG1 242-2AB_1

Name:	Push Button UP 285 single DELTA style
Order-no.:	5WG1 285-2AB_1

Functional description

The application program "20 S1 rocker (BCU2) 907402" provides parameters to switching, value sending, dimming, controlling shutters and recalling/programming scenes with the push button single. The first LED can be used for status display while the second LED can serve as an orientation light.

Switching
When the rockers are pressed, the corresponding signal (on/off/toggle/8 bit value) is sent immediately.
Each rocker contact can be assigned its own 8 bit value. It is therefore possible for a dimming actuator for example to be set to a defined value. A "bell function" is also possible. The On/Off signal is sent when the rocker is pressed and the inverse signal is sent when the rocker is released.

Shutter control
A distinction is made between a short and long push button action. If the rocker is pressed briefly, a switching telegram is sent which adjusts the louvres or stops any shutter movement. After a long push button 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.

Dimming
A distinction is made between a short and long push button action. A short push button action sends a corresponding switching command (on, off or toggle). If the push button 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 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).

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 push button action.

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Initialisation signal
It is not possible to carry out an initialisation signal (on bus voltage recovery). You should ensure that the push button is always in the neutral position (i.e. not pressed) on bus voltage recovery. If the push button 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

Obj	Object name	Function	Type	Flag
0	Switch, Rocker A (upper rocker contact)	On	1 Bit	CT
1	Switch, Rocker A (lower rocker contact)	Off	1 Bit	CT
These objects serve as switching objects for the lower and upper rocker contacts. An On or Off telegram is sent depending on the parameters selected. If "Toggle" is selected, either an On or Off telegram is sent (toggling) depending on the current switching state.				

Parameters

Parameters	Settings
Function of 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 "Rocker" parameter window changes depending on the function that is selected here and the relevant parameters are displayed with default settings.	
Upper contact	**On** Off Toggle 8-bit Value press: On, release: Off press: Off, release: On
Lower contact	On **Off** Toggle 8-bit Value press: On, release: Off press: Off, release: On
This parameter determines which telegram is sent via the corresponding objects when the rocker contacts are pressed. "On" or "Off": An On or Off telegram is sent when the rocker contact is pressed. . "Toggle": The inverse object value of the corresponding switching object is sent each time the contact is pressed. "8-bit Value": A value telegram is sent when the contact is pressed. When this setting is selected, an additional parameter is displayed where the 8 bit value can be defined. "press: On, release: Off": An On telegram is generated when the contact is pressed while releasing the contact produces an Off telegram. "press: Off, release: On": An Off telegram is generated when the contact is pressed while releasing the contact produces an On telegram.	

Shutter

Communication objects

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Obj	Object name	Function	Type	Flag
0	Louvres, Rocker A	Open / Closed	1 Bit	CT
This object serves as a switching object for louvre adjustment after a short push button action. In the default setting, when the upper contact is pressed, the louvres are opened by a step with an Off telegram while pressing the lower contact closes the louvres by a step with an On telegram.				
1	Shutter, Rocker A	Up / Down	1 Bit	CT
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 contact briefly while the shutter is moving causes the shutter to stop.				

Parameters

Parameters	Settings
Function of 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 "Rocker" parameter window changes depending on the function that is selected here and the relevant parameters are displayed with default settings.	
Upper / Lower contact	**Up / Down** Down / Up
This parameter defines the function of the upper and lower rocker contacts. In the default setting, a brief operation of the upper contact opens the louvres by a step with an Off telegram. Pressing the lower contact closes the louvres with an On telegram. A long operation of the upper contact raises the shutter with an Off telegram while pressing the lower contact lowers the shutter with an On telegram.	
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 the rocker is pressed for longer than the set period, the push button detects a long rocker operation.	

Dimming with stop telegram

Communication objects

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

Parameters

Parameters	Settings
Function of 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 "Rocker" parameter window changes depending on the function that is selected here and the relevant parameters are displayed with default settings.	

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Parameters	Settings
Upper / Lower contact	**On / Off** Toggle / Toggle
This parameter defines the function of the upper and lower rocker contacts. In the default setting, pressing the upper contact briefly sends an On telegram while an Off telegram is sent when the lower contact is pressed. If a long push button action is detected, a "Dim brighter" telegram is sent when the upper contact is pressed while pressing the lower contact causes a "Dim darker" telegram to be sent. A stop telegram is sent when the push button is released. If "Toggle / Toggle" is selected, either an On or Off telegram is sent (toggling) after a brief rocker operation, 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.	

Dimming with cyclical sending

Communication objects

	Phys.Addr.	Program		
	no.	**Object name**	**Function**	**Type**
	01.01.004	20 S1 Rocker (BCU2) 907402		
	0	Dimming On / Off / Toggle, Rocker A	On / Off / Toggle	1 Bit
	1	Dimming, Rocker A	Brighter / Darker	4 Bit

Obj	Object name	Function	Type	Flag
0	Dimming On / Off / Toggle, Rocker A	On / Off / Toggle	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 "Toggle / Toggle" is selected, either an On or Off telegram is sent (toggling) depending on the current object status.				
1	Dimming, Rocker A	Brighter / Darker	4 Bit	CT
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 a "Dim darker" telegram is sent when the lower contact is pressed according to the interval selected in the parameter "Interval for cyclical sending".				

Parameters

LED	Rocker	
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 / save)
The function of the rocker is set via this parameter. The "Rocker" parameter window changes depending on the function that is 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
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".	

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Parameters	Settings
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**
01.01.004	20 S1 Rocker (BCU2) 907402		
☐ 0	Scene, Rocker A	Recall	1 Bit
☐ 1	Scene, Rocker A	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 this 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.				

Parameters

LED	Rocker	
Function of rocker	Scene (recall / save)	▼
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 set via this parameter. The "Rocker" parameter window 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 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 scenes. "1 / 0": The assignment of scenes to the rocker contacts is inverted in this setting.	

Parameters	Settings
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.	

LED

Communication objects

Phys.Addr.	Program		
no. Object name		**Function**	**Type**
01.01.004	20 S1 Rocker (BCU2) 907402		
☐ 8	LED	Status	1 Bit

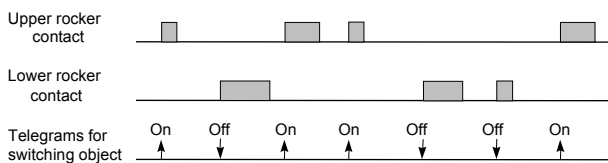| Obj	Object name	Function	Type	Flag
8	Status	LED	1 Bit	CRW
When the LED is used to display the status of a switching state, the switching telegrams are received via the group addresses in this object. If the setting "On" or "Off" is selected in the "LED" parameter window, this object is not displayed and has no function.				

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Parameters

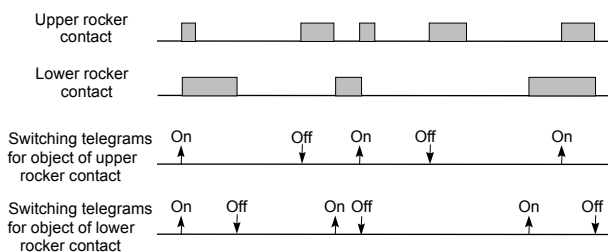| LED	Rocker
Orientation light (LED)	Off
Function of LED	Off

Parameters	Settings
Orientation light (LED)	**Off** On
This parameter defines whether the second LED should be used as an orientation light or always be switched off.	
Function of LED	**Off** On Status (via separate object) Inverted (via separate object)
With this parameter, the first LED can be selected for status display or as an orientation light. If "On" is selected, the LED is used as an orientation light. If "Off" is selected, the LED is switched off. In the setting "Status (via separate object)" or "Inverted (via separate object)", the associated object is added to the object list. This object must then be linked with the corresponding group address.	

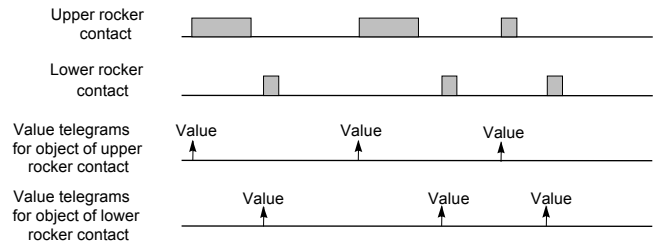## Timing diagrams: Examples for a push button

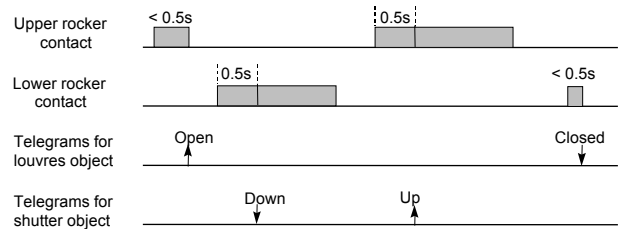### 1. Configured for switch function: upper "On", lower "Off"

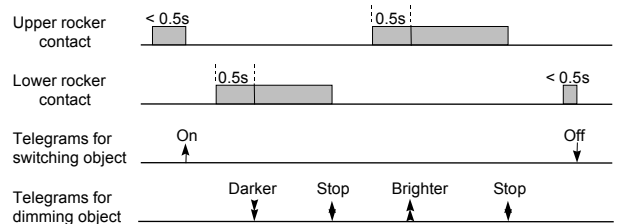### 2. Configured for switch function: upper "Toggle", lower "press: On, release Off"

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

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