

12 S4 BinCycl 240505

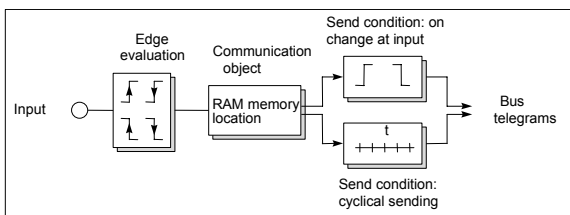
Use of the application program

Product family:	Input
Product type:	Binary input, 4-fold
Manufacturer:	Siemens
Name:	Push button interface UP 220/03
Order no.:	5WG1 220-2AB03
Name:	Push button interface UP 220/13
Order no.:	5WG1 220-2AB13
Name:	Binary input N 260
Order no.:	5WG1 260-1AB01
Name:	Binary input GE 260
Order no.:	5WG1 260-4AB02
Name:	Binary input N 261
Order no.:	5WG1 261-1AB01
Name:	Binary input GE 261
Order no.:	5WG1 261-4AB02
Name:	Binary input GE 262
Order no.:	5WG1 262-4AB02

Functional description






With this application program, it is possible to use conventional signalling devices e.g. push buttons, switches, floating contacts, 230 V contacts and extra-low voltage contacts for switch functions (On/Off/Toggle) via the 4-fold binary inputs or the push button interface UP 220.

Block diagram of an input channel



An edge evaluation can be assigned to each of the four inputs so that "On" or "Off" telegrams can be generated according to the setting when the signal states change from "0" to "1" or from "1" to "0". A sending filter determines whether only "On", only "Off" or both switching states appear on the bus. It is also possible to send the telegrams cyclically at a set interval. The current signal states of the inputs are read in on bus voltage recovery or on initialisation of the binary input and sent directly on the bus when the parameter setting is enabled.

Communication objects

Phys. Addr.		Program		
no.	Function	Object name	Type	
 01.01.001	12 S4 BinCycl 240505			
 0	On / Off / Toggle	Input A	1 Bit	
 1	On / Off / Toggle	Input B	1 Bit	
 2	On / Off / Toggle	Input C	1 Bit	
 3	On / Off / Toggle	Input D	1 Bit	

Note:

The view of the objects can be arranged individually i.e. this view may vary.

Obj	Function	Object name	Type	Flags
0	On / Off / Toggle	Input A	1 Bit	CWT
The switching telegrams of input A are sent via the group address in this object. It is determined via a parameter which signal state at the input generates "On" or "Off" telegrams. If the setting "Toggle" is selected, all the central addresses that are also contained in the actuator must be entered in order to synchronise the sensor.				
1	On / Off / Toggle	Input B	1 Bit	CWT
The switching telegrams of input B are sent via the group address in this object. It is determined via a parameter which signal state at the input generates "On" or "Off" telegrams. If the setting "Toggle" is selected, all the central addresses that are also contained in the actuator must be entered in order to synchronise the sensor.				
2	On / Off / Toggle	Input C	1 Bit	CWT
The switching telegrams of input C are sent via the group address in this object. It is determined via a parameter which signal state at the input generates "On" or "Off" telegrams. If the setting "Toggle" is selected, all the central addresses that are also contained in the actuator must be entered in order to synchronise the sensor.				
3	On / Off / Toggle	Input D	1 Bit	CWT
The switching telegrams of input D are sent via the group address in this object. It is determined via a parameter which signal state at the input generates "On" or "Off" telegrams. If the setting "Toggle" is selected, all the central addresses that are also contained in the actuator must be entered in order to synchronise the sensor.				

Maximum number of group addresses:	14
Maximum number of associations:	16

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Parameters

General

General	Input A	Input B	Input C	Input D
Debounce time				
10 milliseconds				
Send starting value on bus voltage recovery (dep. on edge evaluation)				
Yes				
Limit number of telegrams				
disabled				
Limit number of telegrams				
127 telegrams per 17 sec				

Parameters	Settings
Debounce time	10 milliseconds 30 milliseconds 50 milliseconds 100 milliseconds
When a contact is operated, a short bounce occurs whereby the contact closes and opens several times until it finally remains closed. The duration of the contact bounce depends on the push button action that is used. Due to the fact that the application software is able to scan the inputs rapidly, any multiple push button operations would be detected and several switching telegrams are therefore sent. The debounce time prevents this as after the initial detection of a change in the status at the input, there is a delay for the set time and the current status is then used for further processing.	
Send starting value on bus voltage recovery (dep. on edge evaluation)	Yes No
The signal states of the inputs are read in on bus voltage recovery or after initialisation of the binary input according to the edge evaluation. They are then sent on the bus after approx. 15 seconds depending on the parameter setting for "Send condition: send on change at input or on bus voltage recovery". If the setting "rising edge" is selected, the value is sent after a signal state of logic "1" at the input. If the setting "falling edge" is selected, the value is sent after a signal state of logic "0". "Yes": The signal states of the inputs are sent on bus voltage recovery. "No": The signal states of the inputs are not sent on bus voltage recovery.	
Limit number of telegrams	disabled enabled
Limit number of telegrams	127 telegrams per 17 sec 30 telegrams per 17 sec 60 telegrams per 17 sec 100 telegrams per 17 sec
It is possible to limit the number of telegrams that are sent per time unit, so that a defective push button does not continuously generate switching commands. "disabled": The number of telegrams sent is not limited. "enabled": Depending on the setting, a maximum of 30, 60, 100 or 127 telegrams are sent per 17 seconds.	

Input A

General	Input A	Input B	Input C	Input D
Edge evaluation				
rising On, falling Off				
Send condition: send on change at input or on bus voltage recovery				
rising and falling edge				
Behaviour on sending: cyclical sending on				
no cyclical sending				
Base for cyclical sending				
Time base 8.4 sec				
Factor for cyclical sending (5-127)				
37				

The function and parameters of the four inputs A to D are identical.

Parameters	Settings
Edge evaluation	rising On, falling Off rising Off, falling On rising On falling On rising Off falling Off rising Toggle falling Toggle rising Toggle, falling Toggle no evaluation
This parameter determines which switching value is written into the memory location of the communication object when the signal state changes at the input. A rising edge is when the signal state at the input changes from logic "0" to "1" while a falling edge is a change from logic "1" to "0". "rising On, falling Off": In the event of a rising edge, a logic "1" is transferred into the communication object while a logic "0" is sent in the event of a falling edge. "rising Off, falling On": In the event of a rising edge, a logic "0" is transferred into the communication object while a logic "1" is sent in the event of a falling edge. "rising On": In the event of a rising edge, a logic "1" is transferred into the communication object. A falling edge does not change the object value. "falling On": In the event of a falling edge, a logic "1" is transferred into the communication object. A rising edge does not change the object value. "rising Off": In the event of a rising edge, a logic "0" is transferred into the communication object. A falling edge does not change the object value. "falling Off": In the event of a falling edge, a logic "0" is transferred into the communication object. A rising edge does not change the object value. "rising Toggle": The object value is inverted after each rising edge. This means that a logic "1" is transferred into the communication object with the first rising edge. A logic "0" is sent after the next rising edge and so on. A falling edge does not change the object value. "falling Toggle": The object value is inverted after each falling edge. This means that a logic "1" is transferred into the communication object with the first falling edge. A logic "0" is sent after the next falling edge and so on. A rising edge does not change the object value.	

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Parameters	Settings
<p>"rising Toggle, falling Toggle": The object value is inverted each time the pulse edge changes from "0" to "1" and from "1" to "0". That means that after the first change in the pulse edge, a logic "1" is transferred into the communication object followed by a logic "0" after the next change and so on.</p> <p>"no evaluation": A change in the pulse edge at the input does not modify the object value. The switching state of the communication object can only be changed via the receipt of a bus telegram.</p>	
Send condition: send on change at input or on bus voltage recovery	rising and falling edge rising edge falling edge no sending
<p>This parameter determines whether a telegram is sent after a change in the signal state at the input and on bus voltage recovery with the corresponding input signal. The switching value "On" or "Off" of the telegram is determined by the parameter "Edge evaluation". A rising edge is a change in the signal state at the input from logic "0" to "1" or on bus voltage recovery of the signal state "1". A falling edge is a change in the signal state from logic "1" to "0" or on bus voltage recovery of the signal state "0".</p> <p>"rising and falling edge": A telegram is sent after each change in the pulse edge from "0" to "1" and from "1" to "0" and on bus voltage recovery with any signal state at the input.</p> <p>"rising edge": A telegram is only sent in the event of a rising edge at the input. A falling edge does not generate any telegrams. On bus voltage recovery, a telegram is only sent after a signal state of logic "1" at the input.</p> <p>"falling edge": A telegram is only sent in the event of a falling edge at the input. A rising edge does not generate any telegrams. On bus voltage recovery, a telegram is only sent after a signal state of logic "0" at the input.</p> <p>"no sending": No telegrams are sent after a change in the pulse edge at the input or on bus voltage recovery.</p>	
Behaviour on sending: cyclical sending on	no cyclical sending On Off On and Off
<p>This parameter determines whether the switching value of the communication object should be sent repeatedly on the bus according to the cyclic time.</p> <p>"no cyclical sending": No telegrams are sent cyclically.</p> <p>"On": The object value is only sent cyclically on the bus if it is logic "1". If the state changes from "1" to "0" due to a change in the pulse edge at the input or the receipt of a bus telegram, the cyclical sending stops.</p> <p>"Off": The object value is only sent cyclically on the bus if it is logic "0". If the state changes from "0" to "1" due to a change in the pulse edge at the input or the receipt of a bus telegram, the cyclical sending stops.</p> <p>"On and Off": Each object value is sent cyclically on the bus. If the state changes due to a change in the pulse edge at the input or the receipt of a bus telegram, the new value is sent cyclically.</p>	

Parameters	Settings
Base for cyclical sending	Time base 8.4 sec Time base 130 ms Time base 260 ms Time base 520 ms Time base 1.0 sec Time base 2.1 sec Time base 4.2 sec Time base 17 sec Time base 34 sec Time base 1.1 min Time base 2.2 min Time base 4.5 min Time base 9.0 min Time base 18 min Time base 35 min Time base 1.2 hr
Factor for cyclical sending (5-127)	37
<p>The cyclic time for sending telegrams repeatedly on the bus is specified here. The time is calculated from the selected base multiplied by the factor that is entered here. If "no cyclical sending" is selected, this setting has no significance.</p> <p>Note: An attempt should always be made to set the required time with the smallest possible base as the base that is selected here also simultaneously specifies the maximum timing error.</p>	

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Timing diagrams: Examples for an input

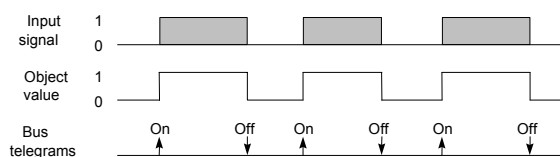
1. Configured with edge evaluation:

rising On, falling Off

Send condition:

rising and falling edge

no cyclical sending

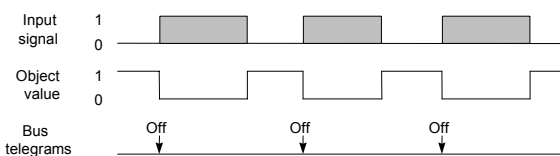


2. Configured with edge evaluation:

rising Off, falling On

Send condition: rising edge

no cyclical sending



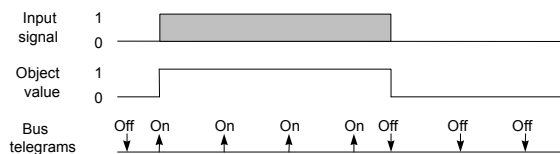
3. Configured with edge evaluation:

rising On, falling Off

Send condition:

rising and falling edge

cyclically On and Off



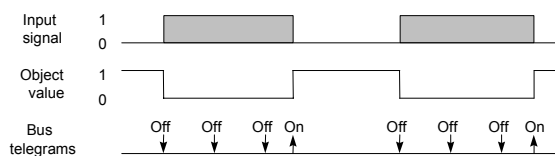
4. Configured with edge evaluation:

rising Off, falling On

Send condition:

rising and falling edge

cyclically Off



5. Configured with edge evaluation: rising On

Send condition:

rising and falling edge

cyclically On

