

## 11 A4 Binary 540B01

### Devices Employing the Program

Product family: Output  
Product type: Binary output 4-fold  
Manufacturer: Siemens

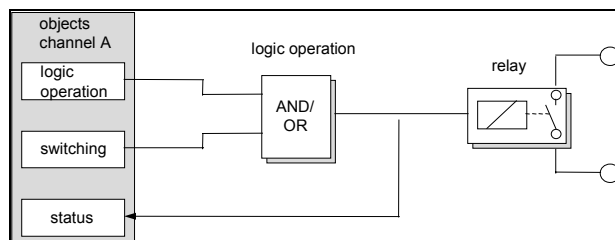
Name: Binary output N 561  
Order-no.: 5WG1 561-1AB01

Name: Binary output N 561 *p/*  
Order-no.: 5WG1 561-1PB01

### Application Description

This application program allows you to use the four outputs for pure switching tasks. Additionally, a logic object is provided to logical operations at channel A. Furthermore, the switching status of the outputs can be read via the bus and parameters are provided to specify the response to bus voltage failure and recovery to the channels A and B, and channel C's and D's response to bus voltage failure, and the relay's contact type.

#### Block diagram of binary output A



### Communication Objects

Phys. Addr.	Program		
no.	Function	Object name	Type
01.01.039	11 A4 Binary	540B01	
0	Logic operation	Logic operation, Channel A	1 Bit
1	On / Off	Switch, Channel A	1 Bit
2	Status	Status, Channel A	1 Bit
3	On / Off	Switch, Channel B	1 Bit
4	Status	Status, Channel B	1 Bit
5	On / Off	Switch, Channel C	1 Bit
6	Status	Status, Channel C	1 Bit
7	On / Off	Switch, Channel D	1 Bit
8	Status	Status, Channel D	1 Bit

#### Note:

The order of the entries may vary from the above due to individual customization of the table.

Obj	Function	Object name	Type	Flag
0	Logic operation	Logic operation, Channel A	1-bit	CWU
This object's group addresses are used to receive the switching telegrams to the first input of the logic operation at channel A. When the parameter "Logic operation" is set to "no logic operation" this object is not used.				
1	On / Off	Switch, Channel A	1-bit	CWU
This object's group addresses are used to receive the timer's switching telegrams to the relay channel A. When using a logic operation the timer's result is the second input of the logic operation at channel A.				
2	Status	Status, Channel A	1-bit	CRU
This object holds the actual switching status of the relay channel A. The status is changed according to the switching telegrams received at the switching object [1] and the status of the logic object [0] if a logic operation was specified but is not affected by the parameter "Relay mode: normally closed contact/ normally open contact". On changing the object status no telegram is sent. The switching status can be read with the ETS or a visualization unit.				
3	On / Off	Switch, Channel B	1-bit	CWU
This object's group addresses are used to receive the timer's switching telegrams to the relay channel B.				
4	Status	Status, Channel B	1-bit	CRU
This object holds the actual switching status of the relay channel B. The status is changed according to the switching telegrams received at the switching object [3] and the specified response to bus voltage recovery but is not affected by the parameter "Relay mode: normally closed contact/ normally open contact". On changing the object status no telegram is sent. The switching status can be read with the ETS or a visualization unit.				
5	On / Off	Switch, Channel C	1-bit	CWU
This object's group addresses are used to receive the timer's switching telegrams to the relay channel C.				
6	Status	Status, Channel C	1-bit	CRU
This object holds the actual switching status of the relay channel C. The status is changed according to the switching telegrams received at the switching object [5] and the specified response to bus voltage recovery but is not affected by the parameter "Relay mode: normally closed contact/ normally open contact". On changing the object status no telegram is sent. The switching status can be read with the ETS or a visualization unit.				
7	On / Off	Switch, Channel D	1-bit	CWU
This object's group addresses are used to receive the timer's switching telegrams to the relay channel D.				

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Obj	Function	Object name	Type	Flag
8	Status	Status, Channel D	1-bit	CRU

This object holds the actual switching status of the relay channel D. The status is changed according to the switching telegrams received at the switching object [7] and the specified response to bus voltage recovery but is not affected by the parameter "Relay mode: normally closed contact/ normally open contact". On changing the object status no telegram is sent. The switching status can be read with the ETS or a visualization unit.

Maximum number of group addresses: 17

Maximum number of assignments: 17

## Parameters

## Note:

The sequence of the parameters in the de-scription is the same as in the ETS screen shots. To have a more precise description, the terms used are partly different to the ETS screen shots.

## Channel A:

Channel A	Channel B	Channel C	Channel D
Logic operation			
		no logic operation	
Starting value of logic operation on bus voltage recovery			
		no action	
Behaviour on bus voltage failure / on bus voltage recovery			
		no action / no action	
Relay mode			
		normally open contact	

Parameters	Settings
<b>Logic operation</b>	<b>no logic operation</b> OR function AND function

This parameter defines the logic operation between the switching object [1] and the logic object [0]. The first input of the logic operation receives the telegrams from the logic object. The second input uses the status of the switching object.

"no logic operation" (combination): Telegrams from the switching object are forwarded to the relays directly subject to the selected "on" and "off" delays, ignoring the logic object.

"OR function" (combination): Switching and logic objects are combined with a logical OR

"AND function" (combination): Switching and logic objects are combined with a logical AND.

Parameters	Settings
<b>Starting value of logic operation on bus voltage recovery</b>	<b>no action</b> logic 1 (On) logic 0 (Off)

This parameter defines the status of the logic object on bus voltage recovery.

"no action" On bus voltage recovery the logic object returns to the status before bus voltage failure. I.e. an OR operation produces "On" telegrams on bus voltage recovery if the status of the logic object was "1" prior to the bus voltage failure. This also applies if the parameter "Behaviour on bus voltage failure / on bus voltage recovery" is set to "relay drops off". With an AND combination the relay picks up only when the logic object's status is "on" on bus voltage failure and the parameter "Behaviour on bus voltage failure / on bus voltage recovery" is set to "relay picks up".

"logic 1 (On)": On bus voltage recovery the logic operation is set to "on". Thus, an OR operation always produces "On" telegrams on bus voltage recovery, while an AND operation only produces on telegrams when the parameter "Behaviour on bus voltage failure / on bus voltage recovery" is set to "relay picks up".

"logic 0 (Off)": On bus voltage recovery the logic operation is set to "Off". Thus, an AND operation never produces "On" telegrams on bus voltage recovery, while an OR operation only produces on telegrams when the parameter "Behaviour on bus voltage failure / on bus voltage recovery" is set to "relay picks up".

<b>Behaviour on bus voltage failure / on bus voltage recovery</b>	<b>no action / no action</b> no action / relay picks up no action / relay drops off relay picks up / picks up relay picks up / drops off relay drops off / picks up relay drops off / drops off
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This parameter rules the relay contact's response to bus voltage failure and recovery. The settings only affect the switching telegrams. The relay contact status is inverted with the parameter "Relay mode: normally closed contact".

"no action": On bus voltage failure the relay contact maintains its current switching status. The response to bus voltage recovery is ruled by the parameters "Logic operation" and "Starting value of logic operation on bus voltage recovery". When using no logic operation, the response to bus voltage recovery is the same as to bus voltage failure.

"relay picks up" (switch on): On bus voltage failure the relay contact picks up in the setting "Relay mode: normally open contact" and drops out when using "Relay mode: normally closed contact". The response to bus voltage recovery is ruled by the parameters "Logic operation" and "Starting value of logic operation on bus voltage recovery". When using no logic operation, the response to bus voltage recovery is the same as to bus voltage failure.

"relay drops off" (switch off): On bus voltage failure the relay contact drops off in the setting "Relay mode: normally open contact" and picks up when using "Relay mode: normally closed contact". The response to bus voltage recovery is ruled by the parameters "Logic operation" Starting value of logic operation on bus voltage recovery". When using no logic operation, the response to bus voltage recovery is the same as to bus voltage failure.

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Parameters	Settings
<b>Relay mode</b>	<b>normally open contact</b> normally closed contact
<p>This parameter defines the characteristic of the relay contact. It also affects the status of the contacts on bus voltage failure and recovery.</p> <p>"normally open contact": "off" telegram = relay drops off, "on" telegram = relay picks up.</p> <p>"normally closed contact": "off" telegram = relay picks up, "on" telegram = relay drops off.</p>	

## Channel B:

Channel A	<b>Channel B</b>	Channel C	Channel D
Behaviour on bus voltage failure / behaviour on bus voltage recovery		no action / no action	
Relay mode		normally open contact	

Parameters	Settings
<b>Behaviour on bus voltage failure / behaviour on bus voltage recovery</b>	<b>no action / no action</b> no action / relay picks up no action / relay drops off relay picks up / picks up relay picks up / drops off relay drops off / picks up relay drops off / drops off
<p>This parameter rules the relay contact's response to bus voltage failure and recovery. The settings only affect the switching telegrams. The relay contact status is inverted with the parameter "Relay mode: normally closed contact".</p> <p>"no action": On bus voltage failure and recovery the relay contact maintains its current switching status.</p> <p>"relay picks up" (switch on): On bus voltage failure and recovery the relay contact picks up in the setting "Relay mode: normally open contact" and drops off when using "Relay mode: normally closed contact".</p> <p>"relay drops off" (switch off): On bus voltage failure and recovery the relay contact drops off in the setting "Relay mode: normally open contact" and picks up when using "Relay mode: normally closed contact".</p>	
<b>Relay mode</b>	<b>normally open contact</b> normally closed contact
<p>This parameter defines the characteristic of the relay contact. It also affects the status of the contacts on bus voltage failure and recovery.</p> <p>"normally open contact": "off" telegram = relay drops off, "on" telegram = relay picks up.</p> <p>"normally closed contact": "off" telegram = relay picks up, "on" telegram = relay drops off.</p>	

## Channel C

Channel A	Channel B	<b>Channel C</b>	Channel D
Behaviour on bus voltage recovery		no action	
Relay mode		normally open contact	

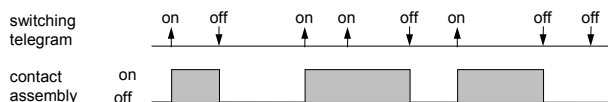
The parameters of channel D can be set accordingly.

Parameters	Settings
<b>Behaviour on bus voltage recovery</b>	<b>no action</b> relay picks up relay drops off
<p>This parameter rules the relay contact's response to bus voltage recovery. The relay contact status is inverted with the parameter "Relay mode: normally closed contact".</p> <p>"no change": On bus voltage recovery the relay contact maintains its current switching status.</p> <p>"relay picks up" (switch on): On bus voltage recovery the relay contact picks up in the setting "Relay mode: normally open contact" and drops off when using "Relay mode: normally closed contact".</p> <p>"relay drops off" (switch off): On bus voltage recovery the relay contact drops off in the setting "Relay mode: normally open contact" and picks up when using "Relay mode: normally closed contact".</p>	
<b>Relay mode</b>	<b>normally open contact</b> normally closed contact
<p>This parameter defines the characteristic of the relay contact. It also affects the status of the contacts on bus voltage failure and recovery.</p> <p>"normally open contact": "off" telegram = relay drops out, "on" telegram = relay picks up.</p> <p>"normally closed contact": "off" telegram = relay picks up, "on" telegram = relay drops out.</p>	

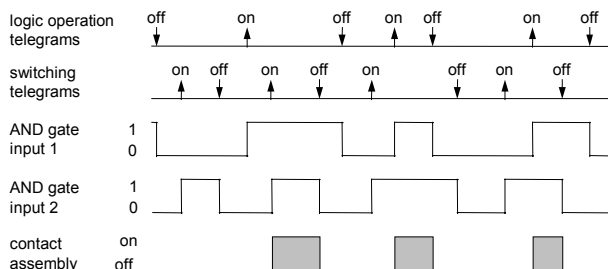
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### Timing Diagrams: Examples to Channel A

#### 1. Switching without logic combination



#### 2. Switching with AND gate



#### 3. Switching with OR gate

