

## 12 CO Binary 740A01

### Devices Employing the Program

Product family: Controller

Product type: Controller

Manufacturer: Siemens

Name: Logic module N301

Order-no.: 5WG1 301-1AB01

### Application Description

This application allows you to allocate and 'multiply' received 1 bit telegrams according to the actual status of the select objects.

This feature can be used to e.g. forward switching telegrams from one room section of a lecture hall to another depending on whether partition walls are currently erected or not. The required select information is provided by switching contacts of binary inputs that are connected to the partition walls.

2 times 4 channels are available, divided into group 1 and group 2 where each channel (= object) can send and receive telegrams. 4 select objects are available to the various combinations to allocating telegrams.

Basically, received telegrams are forwarded immediately. The select inputs rule which channels the information is to be passed on to sending.

The four select inputs (objects) allow to 16 different combinations:

The four communication objects provide 16 different way of allocating telegrams :

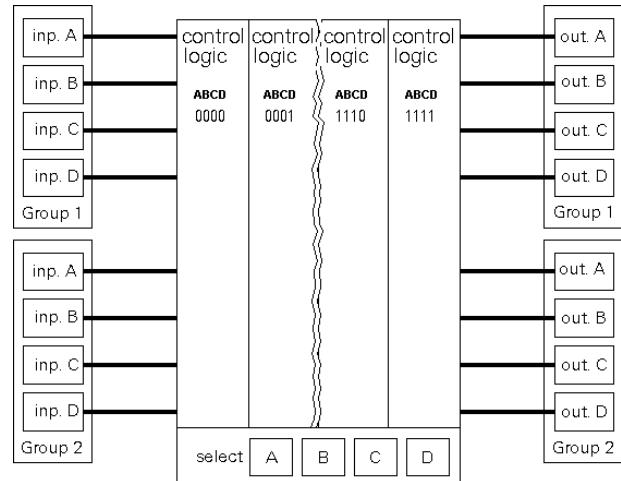
	A	B	C	D	
Select	0	0	0	0	1. combination
Select	0	0	0	1	2. combination
Select	0	0	1	0	3. combination
.....	.....	.....	.....	.....	.....
Select	1	1	0	1	14. combination
Select	1	1	1	0	15. combination
Select	1	1	1	1	16. combination

The parameter list allows you to specify to each channel which group address the received telegrams is to be forwarded to.

There are two operating modes available:

#### Group internal mode:

When set to group internal mode telegrams can be allocated within the group only.



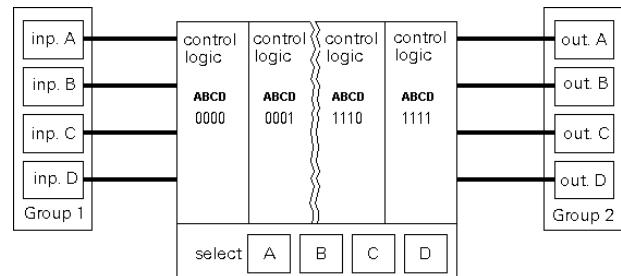
Thus, e.g. a telegram received by channel A of group 1 could be forwarded by channel B of group 1 with a different group address.

The channel from the group that is to forward the telegram is selected in the parameter list, according to the settings of the select inputs. However, these settings always apply to both groups.

Therefore, in the above example a telegram received by channel A of group 2 would be forwarded by channel B of group 2.

#### Group 1 / group 2 mode:

In this mode the channels of group 1 are used as receive objects exclusively while the channels of group 2 become send objects. I.e. information received by channels from group 1 can be passed on to channels from group 2 only.



Thus, e.g. a telegram received by channel A of group 1 is forwarded by channel A and B of group 2 with different group addresses.

The channel from group 2 that is to forward the telegram is selected in the parameter list, according to the settings of the select inputs.

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## Communication Objects

Phys.Addr.	Program			
no.	Function	Object name	Type	
01.01.031	12 CO Binary 740A01			
0	Group 1	Channel A	1 Bit	
1	Group 1	Channel B	1 Bit	
2	Group 1	Channel C	1 Bit	
3	Group 1	Channel D	1 Bit	
4	Group 2	Channel A	1 Bit	
5	Group 2	Channel B	1 Bit	
6	Group 2	Channel C	1 Bit	
7	Group 2	Channel D	1 Bit	
8	Select	A	1 Bit	
9	Select	B	1 Bit	
10	Select	C	1 Bit	
11	Select	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	Group 1	Channel A	1-Bit	CWTU
1	Group 1	Channel B	1-Bit	CWTU
2	Group 1	Channel C	1-Bit	CWTU
3	Group 1	Channel D	1-Bit	CWTU

Via this object's group address group 1 switching telegrams are received and sent by channel A. On receiving a telegram, it is allocated to the respective group objects the sent accordingly. The actual switching status of the select objects and the parameter provided to that combination define the allocation of telegrams.

Via this object's group address group 1 switching telegrams are received and sent by channel B. On receiving a telegram, it is allocated to the respective group objects the sent accordingly. The actual switching status of the select objects and the parameter provided to that combination define the allocation of telegrams.

Via this object's group address group 1 switching telegrams are received and sent by channel C. On receiving a telegram, it is allocated to the respective group objects the sent accordingly. The actual switching status of the select objects and the parameter provided to that combination define the allocation of telegrams.

Via this object's group address group 1 switching telegrams are received and sent by channel D. On receiving a telegram, it is allocated to the respective group objects the sent accordingly. The actual switching status of the select objects and the parameter provided to that combination define the allocation of telegrams.

Obj	Function	Object name	Type	Flag
4	Group 2	Channel A	1-Bit	CWTU
5	Group 2	Channel B	1-Bit	CWTU
6	Group 2	Channel C	1-Bit	CWTU
7	Group 2	Channel D	1-Bit	CWTU
8	Select	A	1-Bit	CWTU
9	Select	B	1-Bit	CWTU
10	Select	C	1-Bit	CWTU
11	Select	D	1-Bit	CWTU

Via this object's group address group 2 switching telegrams are received and sent by channel A. On receiving a telegram, it is allocated to the respective group objects the sent accordingly. The actual switching status of the select objects and the parameter provided to that combination define the allocation of telegrams.

Via this object's group address group 2 switching telegrams are received and sent by channel B. On receiving a telegram, it is allocated to the respective group objects the sent accordingly. The actual switching status of the select objects and the parameter provided to that combination define the allocation of telegrams.

Via this object's group address group 2 switching telegrams are received and sent by channel C. On receiving a telegram, it is allocated to the respective group objects the sent accordingly. The actual switching status of the select objects and the parameter provided to that combination define the allocation of telegrams.

Via this object's group address the switching status of select information A is received. The object status defines the allocation of telegrams together with the actual status of the other select objects and the parameter provided to that combination.

Via this object's group address the switching status of select information B is received. The object status defines the allocation of telegrams together with the actual status of the other select objects and the parameter provided to that combination.

Via this object's group address the switching status of select information C is received. The object status defines the allocation of telegrams together with the actual status of the other select objects and the parameter provided to that combination.

Via this object's group address the switching status of select information D is received. The object status defines the allocation of telegrams together with the actual status of the other select objects and the parameter provided to that combination.

Maximum number of group addresses: 12

Maximum number of assignments: 12

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### Parameters

Select: A B C D = 0 0 0 0:

Select: A B C D = 1111	Select: A B C D = 0111	Operating mode
Select: A B C D = 0 0 1 1	Select: A B C D = 1 0 1 1	Select: A B C D = 0 1 1 1
Select: A B C D = 1 0 0 1	Select: A B C D = 0 1 0 1	Select: A B C D = 1 1 0 1
Select: A B C D = 0 1 1 0	Select: A B C D = 1 1 1 0	Select: A B C D = 0 0 0 1
Select: A B C D = 1 1 0 0	Select: A B C D = 0 0 1 0	Select: A B C D = 1 0 1 0
Select: A B C D = 0 0 0 0	Select: A B C D = 1 0 0 0	Select: A B C D = 0 1 0 0

Channel A (Group 1/2) sends on

Channel B (Group 1/2) sends on

Channel C (Group 1/2) sends on

Channel D (Group 1/2) sends on

The parameters of the other 15 allocation combinations can be set accordingly.

Parameters	Settings
Channel A (Group 1/2) sends on	no channel Channel B Channel C Channel D Channels B, C Channels B, D Channels C, D Channels B, C, D Channel A Channels A, B Channels A, C Channels A, D Channels A, B, C Channels A, B, D Channels A, C, D Channels A, B, C, D
Channel B (Group 1/2) sends on	no channel Channel A Channel C Channel D Channels A, C Channels A, D Channels C, D Channels A, C, D Channel B Channels B, A Channels B, C Channels B, D Channels B, A, C Channels B, A, D Channels B, C, D Channels B, A, C, D
Channel C (Group 1/2) sends on	no channel Channel A Channel B Channel D Channels A, B Channels A, D Channels B, D Channels A, B, D Channel C Channels C, A Channels C, B Channels C, D Channels C, A, B Channels C, A, D Channels C, B, D Channels C, A, B, D

### Channel D (Group 1/2) sends on

<b>no channel</b>
Channel A
Channel B
Channel C
Channels A, B
Channels A, C
Channels B, C
Channels A, B, C
Channels A, B, C, D
Channels D, A
Channels D, B
Channels D, C
Channels D, A, B
Channels D, A, C
Channels D, B, C
Channels D, A, B, C

These parameters define the channels telegrams received are allocated to sending. This setting is used when the combination 0000 is established at the four select objects. The parameters affect both groups.

"Select A B C D = 0 0 0 0" indicates that the status of all four select objects are logic "0"s. Accordingly, the setting "Select A B C D = 0 0 1 1" is used to allocating telegrams when the object status of the selects A and B are logic "0"s and the status of the selects C and D are logic "1"s. Thus, these four select objects provide 16 combinations of allocating telegrams.

"No channel": On receiving a telegram at the respective group the telegram is neither allocated nor sent.

"Channel A": On receiving a telegram at the respective group the telegram is allocated to channel A and sent from there.

"Channel B": On receiving a telegram at the respective group the telegram is allocated to channel B and sent from there.

"Channel C": On receiving a telegram at the respective group the telegram is allocated to channel C and sent from there.

"Channel D": On receiving a telegram at the respective group the telegram is allocated to channel D and sent from there.

"Channels A, B": On receiving a telegram at the respective group the telegram is allocated to the channels A and B and sent from there.

"Channels A, C": On receiving a telegram at the respective group the telegram is allocated to the channels A and C and sent from there.

"Channels A, D": On receiving a telegram at the respective group the telegram is allocated to the channels A and D and sent from there.

"Channels B, C": On receiving a telegram at the respective group the telegram is allocated to the channels B and C and sent from there.

"Channels B, D": On receiving a telegram at the respective group the telegram is allocated to the channels B and D and sent from there.

"Channels C, D": On receiving a telegram at the respective group the telegram is allocated to the channels C and D and sent from there.

"Channels A, B, C": On receiving a telegram at the respective group the telegram is allocated to the channels A, B, and C and sent from there.

"Channels A, B, D": On receiving a telegram at the respective group the telegram is allocated to the channels A, B, and D and sent from there.

"Channels A, C, D": On receiving a telegram at the respective group the telegram is allocated to the channels A, C, and D and sent from there.

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"Channels B, C, D": On receiving a telegram at the respective group the telegram is allocated to the channels B, C, and D and sent from there.

"Channels A, B, C, D": On receiving a telegram at the respective group the telegram is allocated to the channels A, B, C, and D and sent from there.

#### Operating mode:

Select: A B C D = 0011	Select: A B C D = 1011	Select: A B C D = 0111
Select: A B C D = 1001	Select: A B C D = 0101	Select: A B C D = 1101
Select: A B C D = 0110	Select: A B C D = 1110	Select: A B C D = 0001
Select: A B C D = 1100	Select: A B C D = 0010	Select: A B C D = 1010
Select: A B C D = 0000	Select: A B C D = 1000	Select: A B C D = 0100
Select: A B C D = 1111	<b>Operating mode</b>	
Receive / Send	<b>Group internal</b>	

Parameters	Settings
Receive / Send	<b>Group internal</b> Group 1 / Group 2

This parameter rules which group will forward the received telegrams.  
Group internal: Telegrams may be forwarded only from within the same group. Telegrams received by a channel of group 1 are allocated to sending to further channels of group 1 according to the actual select status. This setting applies to both groups.  
Group 1 / Group 2: The channels of group 1 become receive objects exclusively while the channels of group 2 become send objects. E.g., telegrams received by channel A of group 1 are forwarded by channel A of group 2.