12 CO Time 740202

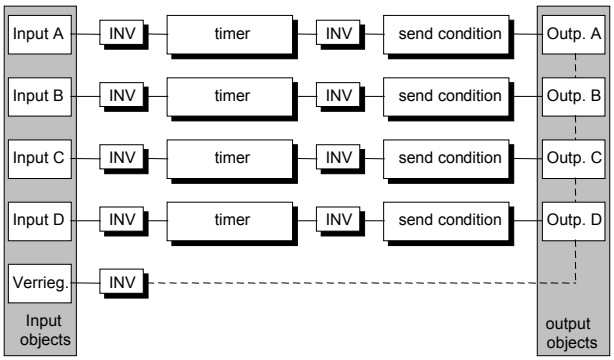
Devices Employing the Program

Product family: Controller
Product type: Controller
Manufacturer: Siemens

Name: Timer module N 302
Order-no.: 5WG1 302-1AB01

Application Description

This application program allows you to make time switch tasks and "on" and "off" delays to switch operations. Four mutually independent channels are available with separate input and output objects each. Furthermore, these channels can be locked and released via an additional locking object.



The following operating modes are available:

Input inversion:
The values received at the four inputs can be inverted before forwarding them to the corresponding timer.

Switch on delay:
On receiving a logical "1" at the timer, the switch on delay is initiated as specified in the parameter list. Each further "1" re-starts the timer. Once the delay period has passed, the "1" is forwarded to the output object. On receiving a logical "0" during the delay period the switch on delay is cancelled.

Switch off delay:
On receiving a logical "0" at the timer, the switch off delay is initiated as specified in the parameter list. Each further "0" re-starts the timer. Once the delay period has passed, the "0" is forwarded to the output object. On receiving a logical "1" during the delay period the switch on delay is cancelled.

Time switch (staircase lighting mode):
When the timer receives a logical "1" this is forwarded to the output object according to the switch on delay as specified in the parameter list. Simultaneously, the selected switch off delay is initiated. Each subsequent "1" during the delay period re-starts the timer. Once the delay period has passed a logical "0" is forwarded to the output object. When receiving a "0" during the delay period, it is forwarded to the output immediately cancelling the delay.

Output inversion:
Output values can be inverted before sending them on the bus.

Send condition:
The sending filter rules whether only logical "0"s or "1"s are sent or both output values.

Communication Objects

Phys.Addr. no.	Function	Object name	Type
01.01.035	12 CO Time 740202		
0	Channel A	Input	1 Bit
1	Channel A	Output	1 Bit
2	Channel B	Input	1 Bit
3	Channel B	Output	1 Bit
4	Channel C	Input	1 Bit
5	Channel C	Output	1 Bit
6	Channel D	Input	1 Bit
7	Channel D	Output	1 Bit
8	Interlocking	Channel A-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	Channel A	Input	1-Bit	CWTU
Via the group addresses of this input object the switching telegrams to timer channel A are received.				
1	Channel A	Output	1-Bit	CTU
Via the group address of this output object the result at the timer channel A is sent.				
2	Channel B	Input	1-Bit	CWTU
Via the group addresses of this input object the switching telegrams to timer channel B are received.				

12 CO Time 740202

Obj	Function	Object name	Type	Flag
3	Channel B	Output	1-Bit	CTU
Via the group address of this output object the result at the timer channel B is sent.				
4	Channel C	Input	1-Bit	CWTU
Via the group addresses of this input object the switching telegrams to timer channel C are received.				
5	Channel C	Output	1-Bit	CTU
Via the group address of this output object the result at the timer channel C is sent.				
6	Channel D	Input	1-Bit	CWTU
Via the group addresses of this input object the switching telegrams to timer channel D are received.				
7	Channel D	Output	1-Bit	CTU
Via the group address of this output object the result at the timer channel D is sent.				
8	Interlocking	Channels A-D	1-Bit	CWTU
Via the group addresses of the locking object lock/release telegrams are received. Parameters are provided to specifying individually to each timer channel whether the status of the locking object is to be evaluated.				

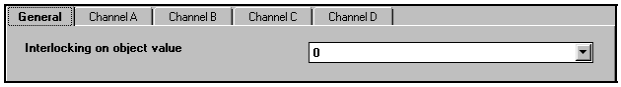
Maximum number of group addresses: 13
Maximum number of assignments: 13

Note:

At the bus coupling unit the four output objects share a single memory unit that holds the timer channel result that was received last, the timer channels overwrite each others results. As this is the only information that can be read from an output, the status of a specific output cannot be read.

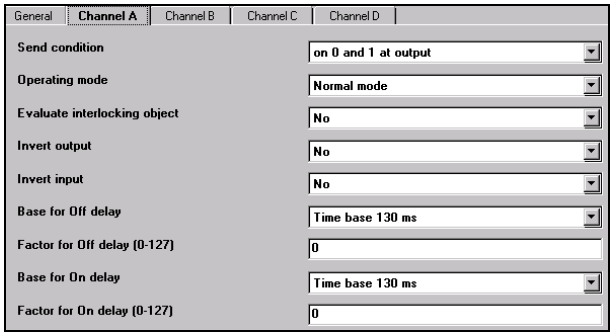
Parameters

General:



Parameters	Settings
Interlocking on object value	**0** 1
This parameter rules the object value to enabling/disabling the interlocking mode: "0": The locking is enabled with "0" telegrams and disabled with "1" telegrams. "1": The locking is enabled with "1" telegrams and disabled with "0" telegrams.	

Channel A:



Parameters	Settings
Send condition	**on 0 and 1 at output** only on 0 at output only on 1 at output
This parameter defines a sending filer to sending telegrams only on specific status of the output object: "on 0 and 1 at output": Every new object status is sent " only on 0 at output ": Only "0" and "off" telegrams are sent. When the object status is "1" no telegrams are sent. " only on 1 at output ": Only "1" and "on" telegrams are sent. When the object status is "0" no telegrams are sent.	
Operating mode	**Normal mode** Time switch
This parameter rules switch off delay mode: "Normal mode": On receiving an "off" telegram via the switching object, the specified switch off delay is started. Each subsequent "off" telegram received before the period has passed re-starts the delay anew. When the delay period has passed without receiving a further "off" telegram, a "0" telegram is sent to the output. "Time switch ": "On" telegrams received at the timer are forwarded to the output object according to the specified switch on delay. Simultaneously the specified delay is started ignoring any switch on delays. Each subsequent "on" telegram received before the period has passed re-starts the delay anew. When the delay period has passed without receiving a further "on" telegram, a "0" telegram is sent to the output. An "off" telegram cancels the switch off delay and is forwarded to the output immediately.	
Evaluate interlocking object	**No** Yes
This parameter rules whether the timer can be locked and released via the locking object or whether the channel is permanently enabled. "No": The timer is permanently enabled. Every input telegram is sent at the output according the specified delay period and sending condition. "Yes": Telegram are sent only if received while the locking object is set to "release". Locking the timer does not cancel any delays that have already been initiated. I.e. telegrams are sent according the specified delay period even if the timer is locked before the delay period has passed.	

12 CO Time 740202

Parameters	Settings
Invert output	**No** Yes
The timer's output value can be inverted before passing it on to the channel's output object. "No:" The value is passed on to the output object unchanged. "Yes:" The value is inverted before it is passed on to the output object.	
Invert input	**No** Yes
The value received at the channel's input object can be inverted before passing it on to the timer. "No:" The value is passed on to the timer channel unchanged. "Yes:" The value is inverted before it is passed on to the timer channel.	
Base for Off delay	**Time base 130 ms** Time base 260 ms Time base 520 ms Time base 1 sec Time base 2,1 sec Time base 4,2 sec Time base 8,4 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 min Time base 18 min Time base 35 min Time base 1,2 hr
Factor for Off delay (0-127)	**0**
These parameters rules the delay to switching off. The delay period is generated by multiplying the base with the factor. Factor = "0": The switch off delay is disabled. Logical "0"s forwarded to the timer is passed on to the output object immediately.	
Base for On delay	**Time base 130 ms** Time base 260 ms Time base 520 ms Time base 1 sec Time base 2,1 sec Time base 4,2 sec Time base 8,4 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 min Time base 18 min Time base 35 min Time base 1,2 hr
Factor for On delay (0-127)	**0**
These parameters rules the delay to switching "on". The delay period is generated by multiplying the specified base with the selected factor. Factor = "0": The switch off delay is disabled. Logical "1"s forwarded to the timer is passed on to the output object immediately.	

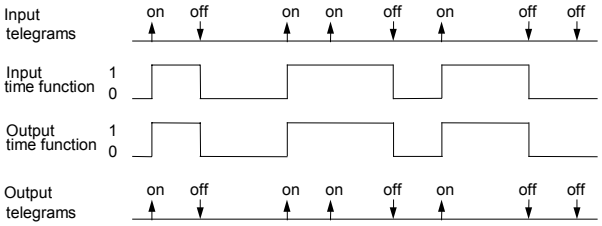
The parameters of the channels B to D can be set accordingly.

The below timing diagrams use the parameter setting "Send condition: on 0 and 1 at output". Accordingly only the "off" or "on" telegrams would be sent when using the respective settings.

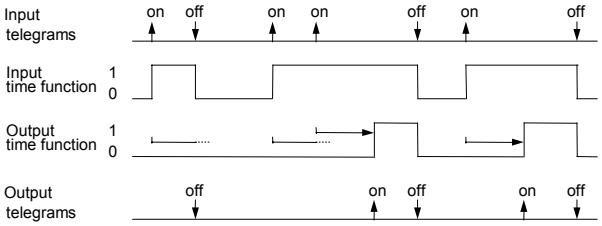
12 CO Time 740202

Timing Diagrams: Channel Examples

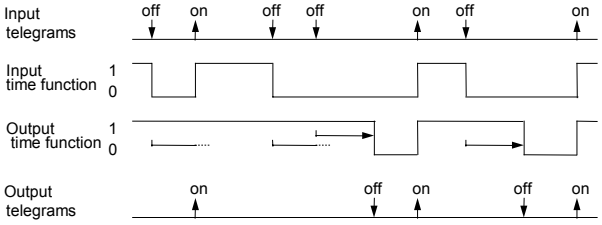
1. Non delayed switching without inversion



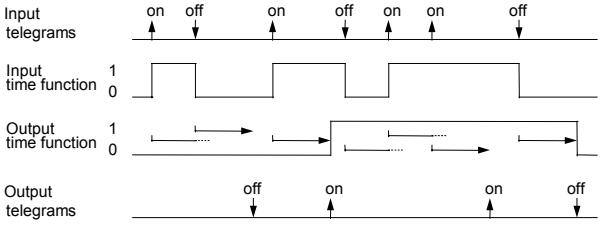
2. Switching with switch on delay and no inversion



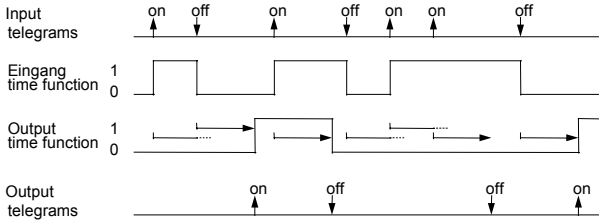
3. Switching with switch off delay and no inversion



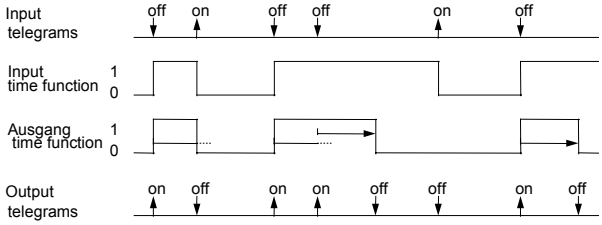
4. Switching with on and off delay with no inversion



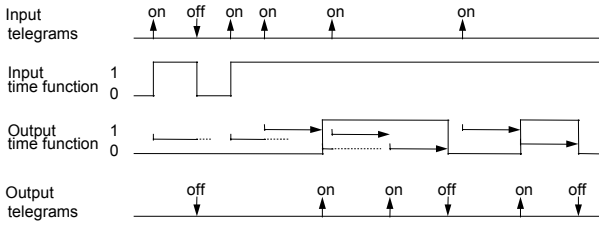
5. Inverted switching with on and off delay



6. Timed switching with inversion at the input



7. Timed switching with switch on delay and no inversion



8. Timed switching with no inversion, with interlocking on object value "0"