SIEMENS

11 CO Switch, Val, Temp set, Time sync 7F0501

Application program usage

Product family: Timer
Product type: REG-Devices
Manufacturer: Siemens

Name: Time Switch 4-Channel REG 372
order-no.: 5WG1 372-5EY01

Name: Time Switch 4-Channel REG 372/02
order-no.: 5WG1 372-5EY02

Functional description

For any of the 4 channels these telegram types may be selected:
- Switching telegram (1-Bit)
- Positive drive telegram (2-Bit)
- Dimming or value telegram (8-Bit)
- Temperature telegram(2 Byte)
- 16-bit Value telegram

Cyclical sending may be selected for each channel. The cycle interval is the same for all four channels.

For synchronization date and time can be received every minute or better every hour.

Note

Communication between bus coupler and clock (and thus execution of the application program) occurs only if the clock is in automatic mode (display shows **Auto**). Any clock actions that occurred while the clock was not in automatic mode are executed when automatic mode resumes.

Communication objects

Phys.Addr.	Program			Order number
no.	**Object name**		**Function**	**Type**
01.01.003	11 CO Switch,Val,Temp set,Time sync 7F0501			5WG1 372-5EY0_
0	Channel 1		On / Off	1 Bit
1	Channel 2		8-bit Value (EIS 6)	1 Byte
2	Channel 3		Positive drive (EIS 8)	2 Bit
3	Channel 4		16-bit value (EIS 5)	2 Byte
4	Time		Value (EIS 3)	3 Byte
5	Date		Value (EIS 4)	3 Byte

Note

Your screen presentation may vary from these typical snap shots.

Obj	Object name	Function	Type	Flag
0	Channel 1	**On / Off**	1 Bit	CT
		8-bit Value (EIS 6)	1 Byte	
		Positive drive (EIS 8)	2 Bit	
		Temperature value (EIS 5)	2 Byte	
		16-bit value (EIS 5)	2 Byte	
1	Channel 2	...	...	CT
2	Channel 3	...	...	CT
3	Channel 4	...	...	CT

On / Off:
Send a switching telegram when the clock channel switches.

8-bit Value (EIS 6):
Send an 8-bit value, when the clock channel switches.

Positive drive (EIS 8):
Send a positive drive telegram, when the clock channel switches.

Temperature value (EIS 5):
Send a temperature telegram, when the clock channel switches.

16-bit value (EIS 5):
Send any pre-set 16-bit value, when the clock channel switches.

4	Time	Value (EIS 3)	3 Byte	CWT

Receive a time telegram (EIS 3) with day of week and time.

5	Date	Value (EIS 4)	3 Byte	CWT

Receive a date telegram (EIS 4) with day, month, and year.

Maximum number of group addresses: 8
Maximum number of assignments: 8

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Parameter

General

Parameter	Settings
Interval for cyclical sending	ca. 3, 5, **10,** 15, 20, 30, 45, 60 minutes
Setting of the time interval with which the message is sent repeatedly on the bus. This parameter is applied to all channels where the sending behaviour is set to „cyclical sending".	

Switch Channel 1 (2 – 4)

Function and parameters of channels 1 - 4 are identical and described only once.

Parameter	Settings
Function	**switch** 8-bit value positive drive temperature 16-Bit-value = (S*0.01*(M1+M2)* 2^exp.)
Select if a switch (1 bit) , value (8 bit), positive drive (2 bit), temperature (2 byte), or 16-bit value (2 byte) telegram shall be sent via this clock channel.	
Behaviour if clock switches OFF	**send OFF telegram** send ON telegram
This parameter appears if a switching telegram shall be sent. Select if an ON or OFF telegram shall be sent when the clock channel switches OFF.	
Behaviour if clock switches ON	send OFF telegram **send ON telegram**
This parameter appears if a switching telegram shall be sent. Select if an ON or OFF telegram shall be sent when the clock channel switches ON.	
Behaviour of sending	**no cyclical sending** cyclical sending
Select if the telegram shall be sent once only or cyclically.	

8-bit Value Channel 1 (2 – 4)

Function and parameters of channels 1 - 4 are identical and described only once.

Parameter	Settings
Function	**switch** 8-bit value positive drive temperature 16-Bit-value = (S*0.01*(M1+M2)* 2^exp.)
Select if a switch (1 bit) , value (8 bit), positive drive (2 bit), temperature (2 byte), or 16-bit value (2 byte) telegram shall be sent via this clock channel.	
Value if clock switches OFF (0-255)	**50**
This parameter appears if a 8-bit value telegram shall be sent. Setting of a value between 0 and 255 to be sent when the clock channel switches OFF.	
Value if clock switches ON (0-255)	**200**
This parameter appears if a 8-bit value telegram shall be sent. Setting of a value between 0 and 255 to be sent when the clock channel switches ON.	
Behaviour of sending	**no cyclical sending** cyclical sending
Select if the telegram shall be sent once only or cyclically.	

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Positive drive Channel 1 (2 – 4)

Function and parameters of channels 1 - 4 are identical and described only once.

Parameter	Settings
Function	**switch** 8-bit value positive drive temperature 16-Bit-value = $(S*0.01*(M1+M2)*2^{exp}.)$
Select if a switch (1 bit) , value (8 bit), positive drive (2 bit), temperature (2 byte), or 16-bit value (2 byte) telegram shall be sent via this clock channel.	
Value if clock switches OFF	**disable positive drive** switch OFF with positive drive switch ON with positive drive
This parameter appears if a positive drive telegram shall be sent. Setting which positive drive value shall be sent when the clock channel switches OFF.	
Value if clock switches ON	disable positive drive switch OFF with positive drive **switch ON with positive drive**
This parameter appears if a positive drive telegram shall be sent. Setting which positive drive value shall be sent when the clock channel switches ON.	
Behavior of sending	**no cyclical sending** cyclical sending
Select if the telegram shall be sent once only or cyclically.	

Positive drive

Actuators with positive drive input allow for overriding of outputs via central control commands.
E.g. when in energy savings or night operation mode switching on of selected lights or loads can be blocked.
In the case of night operation mode a switch OFF positive drive telegram may be sent at 20h00 and at 06h00 a switch ON positive drive telegram.

For explanation of positive drive assume a switch actuator with two input objects. The input object switching

controls the output dependent on the status of the input positive drive.
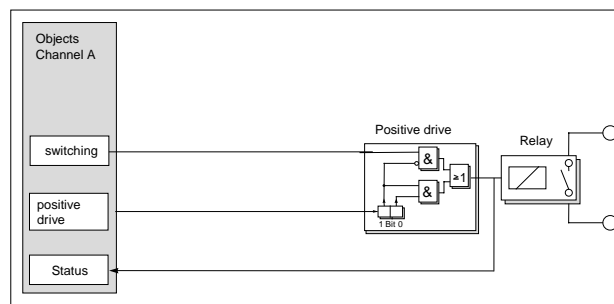
The positive drive object is a 2-bit object.
Bit 1 determines, whether positive drive is "active" (= 1) or „passive" (= 0).

If Bit 1 has the value 0, then positive drive is set to be „passive" and the switching input value is directly available at the positive drive output. At the same time this value is loaded into Bit 0 of the positive drive object. Thus Bit 0 of the positive drive object <u>always</u> contains the status.

If Bit 1 of the positive drive object has the value 1, then the positive drive is set to be "active" and the switching input value is irrelevant for the output value. In this case Bit 0 of the positive drive object determines the output of the positive drive. If positive drive is not activated then the switching input value is directly available at the output of the positive drive.

Bit 1	Bit 0	Function
0	0	Positive drive is not activated
0	1	Positive drive is not activated
1	0	Off with positive drive object value
1	1	On with positive drive object value

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Temperature Channel 1 (2 – 4)

General	Channel 1	Channel 2	**Channel 3**	Channel 4	
Function			temperature		
Value if clock switches OFF			15 °C		
Value if clock switches ON			21 °C		
Behavior of sending			no cyclical sending		

Function and parameters of channels 1 - 4 are identical and described only once.

Parameter	Settings
Function	**switch** 8-bit value positive drive temperature 16-Bit-value = $(S*0.01*(M1+M2)*2^{exp}.)$
Select if a switch (1 bit) , value (8 bit), positive drive (2 bit), temperature (2 byte), or 16-bit value (2 byte) telegram shall be sent via this clock channel.	
Value if clock switches OFF	5 °C ... **15 °C**... 30 °C
This parameter appears if a temperature telegram shall be sent. Setting which temperature value shall be sent when the clock channel switches OFF.	
Value if clock switches ON	5 °C ... **21 °C**... 30 °C
This parameter appears if a temperature telegram shall be sent. Setting which temperature value shall be sent when the clock channel switches ON.	
Behaviour of sending	**no cyclical sending** cyclical sending
Select if the telegram shall be sent once only or cyclically.	

16 Bit value (EIS 5) Channel 1 (2 – 4)

General	Channel 1	Channel 2	Channel 3	**Channel 4**	
Function				16-bit value = $(S*0.01*(M1+M2)*2^{exp}.)$	
if clock switches OFF	sign bit (S)			1	
	mantissa 1 (M1)			0	
	mantissa 2 (M2)			0	
	exponent (exp)			0	
if clock switches ON	sign bit (S)			1	
	mantissa 1 (M1)			0	
	mantissa 2 (M2)			255	
	exponent (exp)			0	
Behavior of sending				no cyclical sending	

Function and parameters of channels 1 - 4 are identical and described only once.

Parameter	Settings
Function	**switch** 8-bit value positive drive temperature 16-Bit-value = $(S*0.01*(M1+M2)*2^{exp}.)$
Select if a switch (1 bit) , value (8 bit), positive drive (2 bit), temperature (2 byte), or 16-bit value (2 byte) telegram shall be sent via this clock channel.	
if clock switches OFF	
sign bit (S)	**+1** -1
mantissa 1 (M1)	**0** 256 512 768 1024 1280 1536 1792
mantissa 2 (M2)	**0 ... 255**
exponent (exp)	**0 ... 15**
This parameter appears if a temperature telegram shall be sent. Setting which 16-bit value shall be sent when the clock channel switches OFF. The value is sent in EIS 5 format and is calculated based on this formula: 16-Bit value = $(S*0.01*(M1+M2)*2^{exp}.)$ example: S = +1 M1 = 0 M2 = 255 exp = 0 16-Bit value = $(+1*0.01*(0+255)*2^{0}.)$ 16-Bit value = 2,55	

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Parameter	Settings
if clock switches ON	
sign bit (S)	**+1** -1
mantissa 1 (M1)	**0** 256 512 768 1024 1280 1536 1792
mantissa 2 (M2)	**0 ... 255**
exponent (exp)	**0 ... 15**
This parameter appears if a temperature telegram shall be sent. Setting which 16-bit value shall be sent when the clock channel switches ON. The value is sent in EIS 5 format and is calculated based on this formula: 16-Bit value = $(S*0.01*(M1+M2)* 2^{exp.})$ example: S = +1 M1 = 0 M2 = 255 exp = 0 16-Bit value = $(+1*0.01*(0+255)* 2^{0}.)$ 16-Bit value = 2,55	
Behavior of sending	**no cyclical sending** cyclical sending
Select if the telegram shall be sent once only or cyclically.	

Bus synchronisation

With the application „11 CO Switch, Val, Temp set, Time sync 7F0501" the time switch can receive time (EIS 3) and date (EIS 4) telegrams for time synchronization.

However, during this so-called bus synchronisation the following points need to be considered:

- If the clock is additionally synchronized by a DCF signal then bus synchronization is blocked.

- Before any bus synchronization a valid time must have been entered at the device itself at least once.

- Two time windows are available daily between 1:58:44 h and 2:13:00 h as well as between 2:58:44 h and 3:13:00 h within which the clock is ready to receive time and date messages.

- Outside these two time windows the clock is only ready once to receive time and date messages independently.

- Another possibility is the execution of a so-called manual sender call. By this means, a time window is opened for 14 minutes by pressing the key Dat for 3 seconds. Within this time window, the clock is again ready to receive time and date messages (as often as required). After this time window, the clock is ready only once to receive time and date messages on its own.

- Furthermore note that in case the weekday in the time message deviates by +/- 1 day from the date set on the clock then the date is changed to match the weekday. Time messages with a deviation of more than one weekday are not accepted. The use of time messages without specification of the weekday is not recommended, as problems can occur with the transition from one day to the next.

Note

For absolutely exact synchronization between specific clocks in an EIB system use synchronization via the DCF77 signal. With this method bus communication latency (e.g. via several couplers) is avoided. Each REG 372/02 has an input for a DCF77 antenna.

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Review

If the time or the date is modified (via keyboard entry, via radio or bus synchronization), a review takes place in the clock. That means in order to avoid switching times being skipped and thus not executed, the clock calculates its switching status again. If the clock detects a modification of the switching conditions, then these are transmitted. However, with this principle favourable procedure the following points are to be considered:

- As manual switchings (circuit anticipations) are not in the switching time memory, manual switching can be lost under certain conditions by the review.
- In addition, impulses from the past are not detected by the review.

The review is performed:

- after resets
- after programming
- after deleting or modifying switching times
- after summer / winter time switching

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