21 CO Switch, Value, Scene, Temp, Time 7F0803

Application program usage

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

Name: 16-channel Time-switch REG 373
Order-No.: 5WG1 373-5EY01

Functional description

The 16 channel time switch REG 373 (annual scheduler) with DCF77 and integrated bus coupling unit is a DIN rail mounted device for mounting in distribution boards. The connection to EIB is made via a bus connector.
Terminals for the DCF77 antenna AP 390 and for 230V are provided to operate the time switch REG 373 with DCF77.
The time switch offers:

- 500 switching times:
  - daily instructions
  - weekly instructions
  - date instructions
  - priority switching times
  - impulse instructions
  - 1 x instructions for vacation / holidays.
  - moving holidays (like Easter)
  - For each channel, additionally 9 further week programs with priority levels P1 to P9 (priority program)
- Astroprogram with sun rise and sun down times for channels 1...4
- time-limited manual and permanently switched circuit
- random program can be activated for each channel

The period of a priority program is determined by input of a beginning and final date.
The time switch calcualtes moving holidays (like Easter) automatically for each year.

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.

Time synchronisation

Time synchronisation of the time switch can be chosen to be made via reception of a date and time bus telegram message, or by the DCF77 radio signal (antenna and mains power is required).
If a valid time telegram was received from the bus and the time switch clock was synchronized no further bus synchronisation will be performed until the next day.
The DCF synchronisation is executed each night between just before 2:00 and shortly before 3:00 in the morning.
A forced synchronisation (via Bus or DCF) is possible at any time with the manual sender call by pressing the Dat key for ca. 3 seconds.

Bus synchronisation

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 of 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 are accepted but 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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Communication objects

Phys.Addr. no.	Object name	Function	Type
01.01.001	21 CO Switch, Value, Scene, Temp, Time 7F0801		5WG1 373-5EY01
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	sending of HVAC mode	1 Byte
4	Channel 5	On / Off	1 Bit
5	Channel 6	On / Off	1 Bit
6	Channel 7	On / Off	1 Bit
7	Channel 8	On / Off	1 Bit
8	Channel 9	On / Off	1 Bit
9	Channel 10	On / Off	1 Bit
10	Channel 11	On / Off	1 Bit
11	Channel 12	On / Off	1 Bit
12	Channel 13	On / Off	1 Bit
13	Channel 14	On / Off	1 Bit
14	Channel 15	On / Off	1 Bit
15	Channel 16	On / Off	1 Bit
26	Time (EIS 3)	send	3 Byte
27	Date (EIS 4)	send	3 Byte
28	Time request	Send time and date	1 Bit

Note

Your screen presentation may vary from these typical snap shots.

Obj	Object name	Function	Type	Flag
0	Channel 1	**On / Off** 8-bit value (EIS 6) positive drive (EIS 8) sending of HVAC mode	1 Bit 1 Byte 2 Bit 1 Byte	CRT CRT CRT CRT
1	Channel 2	...	...	CRT
2	Channel 3	...	...	CRT
3	Channel 4	...	...	CRT
4	Channel 5	...	...	CRT
5	Channel 6	...	...	CRT
6	Channel 7	...	...	CRT
7	Channel 8	...	...	CRT
8	Channel 9	...	...	CRT
9	Channel 10	...	...	CRT
10	Channel 11	...	...	CRT
11	Channel 12	...	...	CRT
12	Channel 13	...	...	CRT
13	Channel 14	...	...	CRT
14	Channel 15	...	...	CRT
15	Channel 16	...	...	CRT

Obj	Object name	Function	Type	Flag
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. HVAC mode: Send an operating mode to a thermostat, when the clock channel switches. Note: The communication objects for channels 1 –16 are identical.				
16	Scene object 1	On / Off 8-bit value (EIS 6) positive drive (EIS 8) sending of HVAC mode temperature value (EIS 5)	1 Bit 1 Byte 2 Bit 1 Byte 2 Bytes	CWT CRT CRT CRT CRT
17	Scene object 2	...	...	CWT
18	Scene object 3	...	...	CWT
19	Scene object 4	...	...	CWT
20	Scene object 5	...	...	CWT
21	Scene object 6	...	...	CWT
Type of telegram sent by the scene object Note: The communication objects of scene objects 1 – 6 are identical.				
22	blocking object 1		1 Bit	CRWT
23	blocking object 2		1 Bit	CRWT
24	blocking object 3		1 Bit	CRWT
25	blocking object 4		1 Bit	CRWT
Block those channels configured on the corresponding parameter pages “Blocking object 1...4".				
26	Time (EIS 3)	**send** receive	3 Byte	CRW
Send time to the bus or receive time from the bus.				
27	Date (EIS 4)	**send** receive	3 Byte	CRW
Send date to the bus or receive the date from the bus.				
28	time request		1 Bit	RW
Receive a time request telegram. After receiving the time request telegram send time and date onto the bus if the parameters „send date and time“ was set.				

Maximum number of group addresses: 36
Maximum number of assignments: 36

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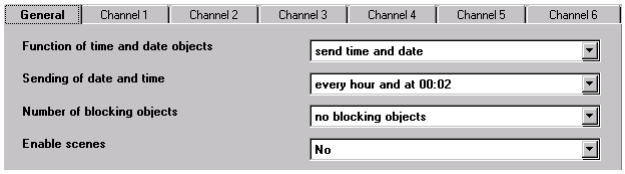
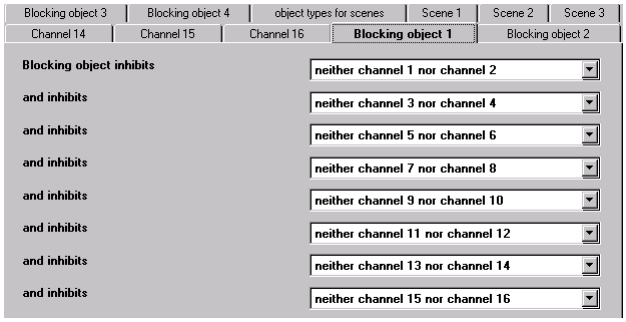
Parameter

General



Parameter	Settings
Function of time and date objects	**Send time and date** Receive time and date
If „Receive time and date“ is selected the clock can be set via date and time telegrams. If „Send time and date“ is selected the clock can cyclically or on request send the current time and date onto the bus.	
Send time and date	only on request every minute every hour every day at 0:00 **every day at 0:02** every hour and at 0:02
This parameter appears if the function of time and date objects is set to send time and date. It sets when and how often time and date shall be sent. Note: Sending time and date can be triggered at any time via the „time request“ object.	
Number of blocking objects	**no blocking object** 1...4 blocking objects
How many blocking objects will be used?	
Enable scenes	Yes **No**
Set this parameter to „Yes“ to enable configuration of scenes.	

Blocking objects (1 – 4)



The 4 blocking objects enable blocking of schedules via the bus.

Depending on the number of blocking objects selected one to four parameter pages are displayed, one for each blocking object.
The channel or channels inhibited by a blocking object can be configured per blocking object.

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

Parameter	Settings
Blocking object disables	**neither channel 1 nor 2** channel 1 channel 2 channel 1 and channel 2
and disables	**neither Channel 3 nor 4** Channel 3 Channel 4 Channel 3 and Channel 4
and disables	**neither Channel 5 nor 6** Channel 5 Channel 6 Channel 5 and Channel 6
and disables	**neither Channel 7 nor 8** Channel 7 Channel 8 Channel 7 and Channel 8
and disables	**neither Channel 9 nor 10** Channel 9 Channel 10 Channel 9 and Channel 10
and disables	**neither Channel 11 nor 12** Channel 11 Channel 12 Channel 11 and Channel 12
and disables	**neither Channel 13 nor 14** Channel 13 Channel 14 Channel 13 and Channel 14
and disables	**neither Channel 15 nor 16** Channel 15 Channel 16 Channel 15 and Channel 16
Select which channels a blocking object shall inhibit. Each blocking object can inhibit any combination of channels.	

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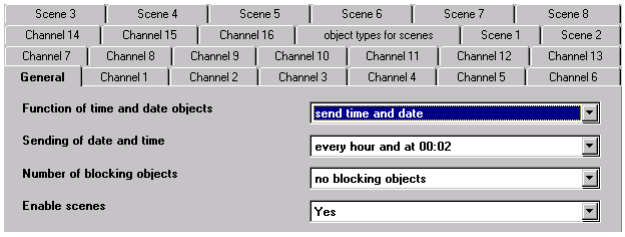
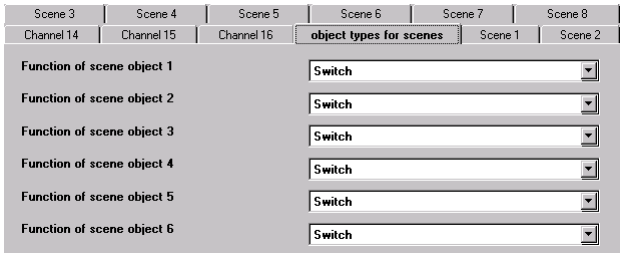
Scenes (1 – 8)

If the scene functions are used a configuration tab „object types for scenes“ appears and one parameter tab for each scene object (1 – 8).



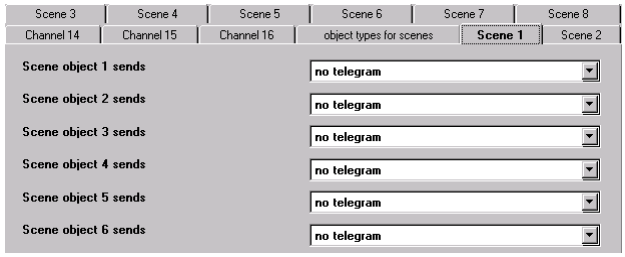
A scene is a combination of up to 6 telegrams that are sent immediately after the clock channel turns on or off. Each clock channel can trigger up to two different scenes, one when the clock channel turns on, the other when the clock channel turns off.
Scene telegrams are sent via the 6 scene objects. Each object can be configured as switching, 8-bit value, positive drive, HVAC or temperature object. Thus, with one clock switching instruction different types of actuators or actuator groups (switch, dimming, shutter acturators) can be controlled at the same time. Also, temperature values can be sent as part of a scene.



Parameter	Settings
Function of scene object 1, 2, 3, 4, 5, 6	**Switch** 8-bit value positive drive HVAC mode temperature
Type of telegrams to be sent by the scene object.	

Function and parameters of scene objects 1 - 6 are identical and described only once.

A scene is a combination of up to 6 scene objects. If a scene object is enabled for a scene the corresponding telegram to be sent when the scene is triggered can be configured.



Parameter	Settings
Scene object 1, 2, 3, 4, 5, 6 sends	following telegram **no telegram**
Select which of the 6 scene objects shall be used in this scene.	

Depending on the function determined in the tab „object types for scenes“ these parameters can be set:

Parameter	Settings
Switching telegram	**send OFF telegram** send ON telegram
Select the value of the switching telegram.	
8-bit value	**0**...255
Select the value of the 8-bit value telegram.	
Positive drive	**disable positive drive** switch OFF with positive drive switch ON with positive drive
Select the value of the positive drive telegram.	
HVAC mode	auto comfort **standby** economy mode frost and heat protection
Select the desired HVAC operating mode.	
Temperature value	5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, **20**, 20,5, 21, 21,5, 22, 22,5, 23, 24, 25, 26, 27, 28, 29, 30°C
Set the desired temperature value to be sent.	

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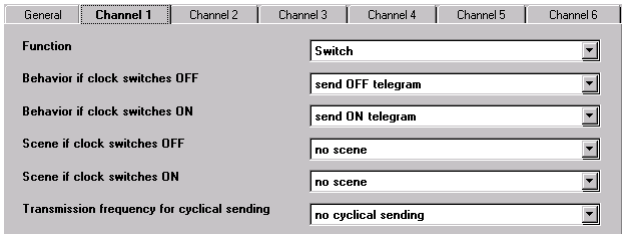
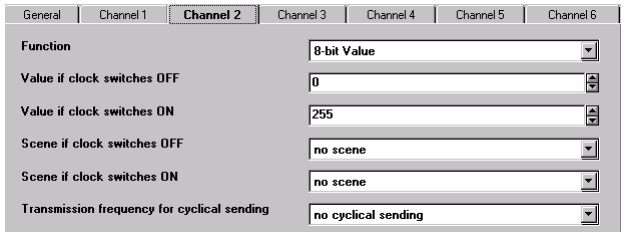
Switch Channel 1 (2 – 16)



Function of and parameters for channels 1 - 16 are identical and described only once.

Parameter	Settings
Function	**On / Off** 8-bit value positive drive HVAC mode
Select if a switch (1 bit) , value (8 bit), positive drive (2 bit) or HVAC mode telegram shall be sent via this clock channel.	
Behavior if clock switches OFF	send ON telegram **send OFF telegram**
Select if an OFF (ON) telegram shall be sent when the clock channel switches OFF.	
Behavior if clock switches ON	**send ON telegram** send OFF telegram
Select if an ON (OFF) telegram shall be sent when the clock channel switches ON.	
Scene if clock switches OFF	**no scene** scene 1 ... scene 8
Select the scene to be sent when the clock channel switches OFF. This parameter only appears if scenes are enabled.	
Scene if clock switches ON	**no scene** scene 1 ... scene 8
Select the scene to be sent when the clock channel switches ON. This parameter only appears if scenes are enabled.	
Transmission frequency for cyclical sending	**no cyclical sending** 1 min 2 min 4 min 8 min 16 min 32 min 64 min 128 min
Select if and with which cycle time the value shall be sent to the bus.	

8-bit value Channel 1 (2 – 16)



Function of and parameters for channels 1 - 16 are identical and described only once.

Parameter	Settings
Function	**8-bit value**
Select to send an 8-bit value (1 Byte) via this channel.	
Value if clock switches OFF	**0 ... 255**
Setting of a value between 0 and 255 to be sent when the clock channel switches OFF.	
Value if clock switches ON	**0 ... 255**
Setting of a value between 0 and 255 to be sent when the clock channel switches ON.	
Scene if clock switches OFF	**no scene** scene 1 ... scene 8
Select the scene to be sent when the clock channel switches OFF. This parameter only appears if scenes are enabled.	
Scene if clock switches ON	**no scene** scene 1 ... scene 8
Select the scene to be sent when the clock channel switches ON. This parameter only appears if scenes are enabled.	
Transmission frequency for cyclical sending	**no cyclical sending** 1 min 2 min 4 min 8 min 16 min 32 min 64 min 128 min
Select if and with which cycle time the value shall be sent to the bus.	

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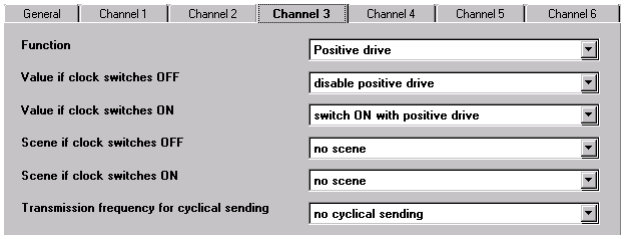
Positive drive Channel 1 (2 – 16)



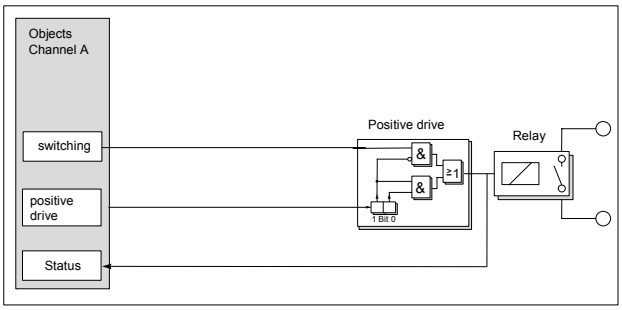
Function of and parameters for channels 1 - 16 are identical and described only once.

Parameter	Einstellungen
Function	**Positive drive**
Select to send a positive drive (2-bit) telegram via this channel.	
Value if clock switches OFF	**disable positive drive** switch OFF with positive drive switch ON with positive drive
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**
Setting which positive drive value shall be sent when the clock channel switches ON.	
Scene if clock switches OFF	**no scene** scene 1 ... scene 8
Select the scene to be sent when the clock channel switches OFF. This parameter only appears if scenes are enabled.	
Scene if clock switches ON	**no scene** scene 1 .... scene 8
Select the scene to be sent when the clock channel switches ON. This parameter only appears if scenes are enabled.	
Transmission frequency for cyclical sending	**no cyclical sending** 1 min 2 min 4 min 8 min 16 min 32 min 64 min 128 min
Select if and with which cycle time the value shall be sent to the bus.	

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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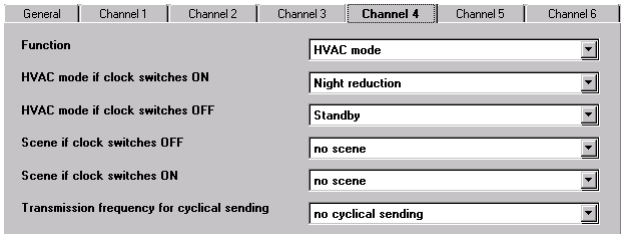
HVAC mode Channel 1 (2 – 16)



Function of and parameters for channels 1 - 16 are identical and described only once.

Parameter	Einstellungen
Function	**HVAC mode**
Select to send an HVAC mode via this channel.	
Operating mode if clock switches OFF	auto comfort **standby** economy mode frost and heat protection
Select the HVAC mode to be sent when the clock channel switches OFF.	
Operating mode if clock switches ON	auto comfort **standby** economy mode frost and heat protection
Select the HVAC mode to be sent when the clock channel switches ON.	
Scene if clock switches OFF	**no scene** scene 1 ... scene 8
Select the scene to be sent when the clock channel switches OFF. This parameter only appears if scenes are enabled.	
Scene if clock switches ON	**no scene** scene 1 ... scene 8
Select the scene to be sent when the clock channel switches ON. This parameter only appears if scenes are enabled.	
Transmission frequency for cyclical sending	**no cyclical sending** 1 min 2 min 4 min 8 min 16 min 32 min 64 min 128 min
Select if and with which cycle time the value shall be sent to the bus.	

Review

If the time or the date is modified (via keyboard entry, via radio or bus synchroization), 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 in 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

Note

When the clock changes to a new priority period at 0:00 a new **priority related review** is performed.

The clock behaves as if the new priority had been active the day before and immediately assumes the switching condition that would have been active at midnight of that previous day.

Advantage:
Program P1: 22:00 on / 6:00 off from 1 May to 31 May
Program P2: 23:00 on / 7:00 off from 1 June to 30 June
Without review the clock would switch to off on 1 June at 0:00 on changing between P1 and P2 because at this time no switching time is programmed. With the review the switching time at 23:00 of the previous day is considered and the channel stays on.

If in certain cases this review is not desired this behavior can be overridden by a date instruction (off) at 0:00 at the beginning of the priority period (here on 1 June). This measure is only required if in the new priority period the last switching instruction of the day i.e. before 24:00 is an on instruction.

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