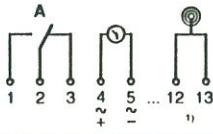
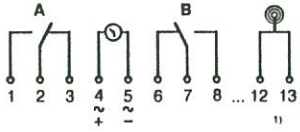


Wiring diagrams

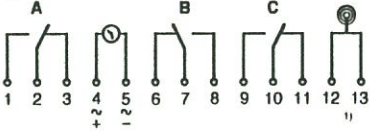
1 channel type



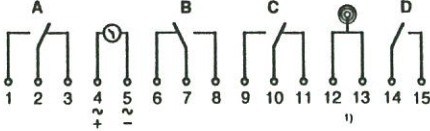
2 channel type



3 channel type



4 channel type



26 <sup>1)</sup> Radio time control

SC 78/NE/9504/Printed in Germany

Electronic time switch  
Programming manual  
Examples

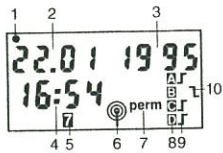


Contents

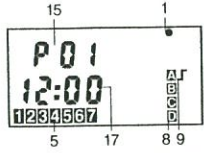
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2

Various displays



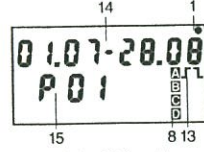
AUTO-(matic) mode



Special (additional) week programme (No. 01...15)



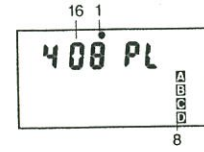
"Once through" switching (1x)  
Impulse switching



Special (additional) programme (No. 01...15)  
Date for beginning and ending



Permanent switching  
Date for beginning and ending



Available storage locations  
Total 110 with 1, 2 or 3 channel types  
Total 408 with 4 channel type



- 1 Programming mode
- 2 Day/month
- 3 Year
- 4 Actual time
- 5 Day of week
- 6 Connection of DCF 77 receiver Radio time control (Central Europe)\*
- 7 Permanent ON, manually overridden
- 8 Channel(s)
- 9 Switch position ON
- 10 Switch position OFF
- 11 "Once through" switching (1x)
- 12 Duration of impulse
- 13 Switching function IMPULSE
- 14 Dates for beginning and ending
- 15 Special (additional) programme
- 16 Available storage locations
- 17 Switching time

\* Not required for normal use.

4

Installation details

The high density electronic circuit is protected against a wide range of external influences. Incorrect operation may occur if external influences exceed certain limits.

This influence will be reduced if the following points are observed:

1. Do not mount time switch near high inductive influences e.g. contactors, high current cables, magnetic valves, thyristor drives etc.
2. When switching inductive loads it is advisable to fit suppression i.e. varistor, RC network.
3. For larger loads it is generally preferable to interface the load with a contactor or power relay.

Connect to voltage and frequency according to type label only.

**Caution:** The installation and assembly of electrical equipment must be carried out only by a skilled person.

5

### Programming advice

Make inputs step by step. The appropriate position in the display is flashing and can be changed by pressing the key [◆]. Head for next position by using key [▶], go backwards by using key [◀].

Inputs are finished when flashing is finished.

### Key functions

- [⊙] Selection of programming modes
- [CL] Cancelling of inputs (in modes 1...7, DATE, ?, SP 1...7, SP DATE).
- [◆] Change of flashing position.
- [▶] Head for required position (forwards).
- [◀] Return to required position (backwards).
- [A] [B] [C] [D] Press for manual overrided ON or OFF in adequate channel. When keeping key depressed for 3 seconds, PERMANENT ON or OFF will be switched, PERM will be displayed. Programmed functions in adequate channel will be suppressed.  
  
Cancel PERMANENT ON or OFF by a new 3-second press on adequate key, PERM will disappear. Channel switch goes into programmed position.

### Operating modes

- AUTO = Automatic. Display of date, day of week, switch status of channel(s). Manual overriding possible. (A), (B), (C), (D).
- 1...7 Input of switching commands according to week day(s) and time.
- DATE Input permanent ON or OFF, beginning and ending according to date.
- ? Display of storing locations available. Read out of switching times, selected in sequence to channels (A, B, D, D). Changing of switching times, single or total cancellation.
- ⊕ Input of actual date (automatic display of day of week) and actual time.
- S/W Display of automatic "summer" (daylight saving) time period, input of individual dates or suppression of time change.
- SP Input of special (additional) week programmes P 01...15:  
1...7 Programming week day(s) and time  
DATE Programming beginning and ending according to date.

After programming or changing of switching times or changing of actual time the channel switches go into programmed status when time switch is back in AUTO mode.

### Current date and time input

Operating mode: ⊕

Example: Date 27.05.1995  
Actual time 20.15

Initial form: new

[Key]	Display	Input
[⊙] 4x	⊕ ● 0 . :	Operating mode
[◆] 2x	2 .	Date
[▶] 1x	20 .	
[◆] 7x	27 .	
[▶] 1x	27 . 0	
[▶] 1x	27 . 01	
[◆] 4x	27 . 05	
[▶] 1x	27 . 05 199	
[▶] 1x	27 . 05 1990	
[◆] 5x	27 . 05 1995	
[▶] 1x	27 . 05 1995 [G]	
[◆] 2x	0 :	Actual time
[▶] 1x	20 :	
[▶] 1x	20 : 0	
[◆] 1x	20 : 1	
[▶] 1x	20 : 10	
[◆] 5x	20 : 15	AUTO-(matic) mode
[▶] 1x	AUTO ●	
	27 . 05 1995 [A] 1	
	20 : 15 [B] 1	
	[C] 1	
	[D] 1	

### Time correction

Change actual time

Operating mode: ⊕

Example: Date 04.05.1995, 2 (Thursday)  
Change time from 17.00 h into 17.05 h

Initial form: AUTO

[Key]	Display	Input
[⊙] 4x	⊕ ● 04 . 05 1995 17 : 00 [A]	Operating mode
[▶] 9x	17 . 00	Actual time
[◆] 5x	17 . 05	
[▶] 1x	AUTO ●	AUTO-(matic) mode
	04 . 05 1995 [A] *	
	17 : 05 [B] *	
	[C] *	
	[D] *	

\* Channel switches in programmed position ON or OFF according to new (corrected) time.



**Programming IMPULSE (01...59 sec.)**

Operating mode: 1...7

Example: Day 1 (Monday)  
Switching time 09.00 h  
Channel A, Impulse-duration 59 sec.

Initial form: AUTO

[Key]	Display	Input
[C] 1x	1...7 ● : [1]	Operating mode
[D] 1x	: [1] [2]	Day of a week
[6] 6x	0 : [1]	Switching time
[1] 1x	00 : [1]	
[9] 9x	09 : [1]	
[1] 1x	09 : 0 [1]	
[1] 1x	09 : 00 [1]	
[1] 1x	09 : 00 [1] 1x	Pass symbol
[1] 1x	09 : 00 [1] [A]	Channel
[1] 1x	09 : 00 [1] [A] 1	
[1] 1x	09 : 00 [1] [A] [1]	
[1] 1x	09 : 00 [1] [A] [1] [B]	
[1] 1x	09 : 00 [1] [A] [1] [B] [C]	
[1] 1x	09 : 00 [1] [A] [1] [B] [C] [D]	
[1] 1x	09 : 00 [1] [A] [1] [B] [C] [D] 0	Impulse-duration
[5] 5x	09 : 00 [1] [A] [1] [B] [C] [D] 5	
[1] 1x	09 : 00 [1] [A] [1] [B] [C] [D] 5 0	
[9] 9x	09 : 00 [1] [A] [1] [B] [C] [D] 5 9	
[1] 1x	09 : 00 [1] [A] [1] [B] [C] [D] 5 9	

After appr. 3 sec.:

[1] [2] [A] [B] [C] [D]

Continue with further functions, choose other programming mode with [C] or return to AUTO.

**Programming permanent ON or OFF  
Beginning and ending according to date**

Operation mode: DATE

Example: Beginning 15.01., Ending 30.04.  
Channel B, ON

Initial form: AUTO

[Key]	Display	Input
[C] 2x	DATE ● 0 . . .	Operating mode
[D] 1x	1 . . .	Date for beginning
[1] 1x	10 . . .	
[5] 5x	15 . . .	
[1] 1x	15 . 0 . . .	
[1] 1x	15 . 01 . . .	
[1] 1x	15 . 01 - 0 . . .	Date for ending
[3] 3x	15 . 01 - 3 . . .	
[1] 1x	15 . 01 - 30 . . .	
[1] 1x	15 . 01 - 30 . 0	
[1] 1x	15 . 01 - 30 . 01	
[2] 2x	15 . 01 - 30 . 01	
[1] 1x	15 . 01 - 30 . 01 1x	Pass symbol
[1] 1x	15 . 01 - 30 . 01 [A]	Channel
[1] 1x	15 . 01 - 30 . 01 [A] [B]	Channel ON
[1] 1x	15 . 01 - 30 . 01 [A] [B] [C]	
[1] 1x	15 . 01 - 30 . 01 [A] [B] [C] [D]	

After appr. 3 sec.:

[1] [2] [A] [B] [C] [D]

Continue with further functions, choose other programming mode with [C] or return to AUTO.

**Special programming (additional) week program**

Operation mode: SP 1...7 for day(s) of week and switching time

Example: Program 01

Daily (1...7)      Daily (1...7)  
Switching time 12.00 h      Switching time 15.00 h  
Channel A, ON      Channel A, OFF

Initial form: AUTO

[Key]	Display	Input
[C] 6x	SP 1...7 ● P01 : [1]	Operating mode
[1] 1x	P01 [A] [B] [C] [D]	SP-Progr.
[7] 7x	0 : [1] [2] [3] [4] [5] [6] [7]	Days of a week
[1] 1x	1 : [1]	Time for ON
[1] 1x	10 : [1]	
[2] 2x	12 : [1]	
[1] 1x	12 : 0 [1]	
[1] 1x	12 : 00 [1]	
[1] 1x	12 : 00 [1] [A] [B] [C] [D]	Channel ON
[1] 1x	12 : 00 [1] [A] [B] [C] [D]	
[4] 4x	P01 [A] [B] [C] [D]	
[1] 1x	P01 [A] [B] [C] [D]	
[7] 7x	0 : [1] [2] [3] [4] [5] [6] [7]	

[D] 1x	1 :	Time for OFF
[1] 1x	10 :	
[5] 5x	15 :	
[1] 1x	15 : 0	
[1] 1x	15 : 00	
[1] 1x	15 : 00	
[1] 1x	15 : 00	
[1] 1x	15 : 00	
[4] 4x	P01 [A] [B] [C] [D]	Channel OFF
[1] 1x	P01 [A] [B] [C] [D]	

Continue with further programs, choose other programming mode with [C] or return to AUTO.

As long as SP-program is not activated by programming date for beginning and ending, the standard program will be carried out.

**Programming beginning and ending by date for special program**

Programming mode: SP DATE (for dates)

Example: Program No. 01 (from 15 possible)

Date 01.07 - 28.08      Date 24.12. - 06.01.  
Channel A      Channel A

Initial form: AUTO

[Key]	Display	Input
[C] 1x	SP DATE ● : P01	Operating mode
[1] 1x	0 . . . [A] [B] [C] [D]	
[1] 1x	P01 [A] [B] [C] [D]	

[>]1x	01 . - .	1st date
[>]1x	01.0 - .	
[>]1x	01.01 - .	
[>]6x	01.07 - .	
[>]1x	01.07-0 .	
[>]2x	01.07-2 .	
[>]1x	01.07-20 .	
[>]8x	01.07-28 .	
[>]1x	01.07-28.0	
[>]1x	01.07-28.01	
[>]7x	01.07-28.08	
[>]1x	24.12-06.01 1x	A B C D
[>]1x	01.07-28.08	A B C D
[>]1x	01.07-28.08	AJ1 B C D
[>]4x	P01	A B C D
[>]1x	0 . - .	2nd date
[>]2x	P01	A B C D
[>]1x	2 . - .	
[>]1x	20 . - .	
[>]4x	21 . - .	
[>]1x	24.0 - .	
[>]1x	24.1 - .	
[>]1x	24.10 - .	
[>]2x	24.12 - .	
[>]1x	24.12-0 .	
[>]1x	24.12-01 .	
[>]5x	24.12-06 .	
[>]1x	24.12-06.0	
[>]1x	24.12-06.01	
[>]1x	24.12-06.01 1x	A B C D
[>]1x	24.12-06.01	A B C D
[>]1x	24.12-06.01	AJ1 B C D
[>]4x	P01	A B C D

For further programs see next page.

Continue with further programs, choose other programming mode with [C] or return to AUTO.

When "once through" (1x) is programmed, the date (SP DATE) for the command will be cancelled after execution. The special program (SP) remains stored.

When beginning and ending are programmed for the same day, the program will be executed on this one day only.

### Read out of switching functions

Operating mode: ?

Example: Functions programmed in this manual

Initial form: AUTO

[Key]	Display	Input
[^]3x	? ●	Operating mode
	397 PL	Number of available storage locations
[>]1x	09:00 1	Read out
[>]1x	19:00 3	
[>]1x	19:00 5 6	
[>]1x	P01 12:00 1...7	
[>]1x	P01 15:00 1...7	
[>]1x	P01 01.07-28.08	
[>]1x	P01 24.12-06.01	
[>]1x	16:35 1...7	
[>]1x	15.01-30.04	
[>]1x	16:35 1...7	
[>]1x	20:00 5 1x	

After reading out the last switching command, the storage locations available are displayed.

For reading out backwards use key [←].

Reading out referring to channel sequence A-D.

### Changing of switching times

Operating mode: ?

Example: Functions programmed in this manual.  
Change day 3 (Wednesday) into daily (1...7)

Initial form: AUTO

[Key]	Display	Input
[^]3x	? ●	Operating mode
	397 PL	
[>]1x	09:00 1	Days of a week
[>]1x	19:00 3	
[>]1x	19:00 1 2 3	
[>]1x	19:00 1 2 3 4	
[>]1x	19:00 1 2 3 4 5	
[>]1x	19:00 1 2 3 4 5 6	
[>]1x	19:00 1 2 3 4 5 6 7	
[>]1x	19:00 1 2 3 4 5 6 7	
[>]8x	19:00 1 2 3 4 5 6 7	
[>]1x	Display next command forwards	
[←]1x	Display previous command backwards	

### Clearing of single commands

Operating mode: ?

Example: Clearing of two commands listed page 19  
(Read out)

Initial form: ?

[Key]	Display	Input
[^]3x	? ●	Operating mode
	397 PL	
[>]1x	19:00 3	Clear
[>]1x	19:00 5 6	
[CL]1x	: 09:00 1	Clear
[>]1x	16:35 1...7	
[>]1x	15.01-30.04	
[CL]1x	: 16:35 1...7	

After the last switching command is displayed, the storage locations available will be displayed.

### Clearing of all switching functions

Operating mode: ?

Example: Clearing of all switching commands programmed

Initial form: ?

{Key}	Display	Input
[C] 3x	? ● 397 PL	Operating mode
[CL] 1x	397 PL	clear
[CL] 1x	408 PL	

### Reset – for new start

In the case of interference (page 5), a RESET might become necessary. Press mark on the left of key A. Time and date inputs will be neutralized. For new programming, see page 8.

The programmed switching functions normally remain valid. Check by "Read out", page 19.

### Automatic changeover from/to summertime (Daylight saving)

The time changeover is executed automatically according to the "Central European Regulations" on the last Sunday in March and September.

In the operating mode S/W, the summertime period of the year will be displayed.

Operating mode: S/W, summertime mode 1

This displays the dates for the beginning and end of summertime.

{Key}	Display	Input
[C] 5x	S/W ● 28 . 03 - 26 . 09 1	Operating mode  Date Mode
[>] 1x	Return to AUTO	

### Suppression of the summertime changeover (For countries not operating to the "Central European Regulations")

Operating mode: S/W, summertime mode 3

{Key}	Display	Input
[C] 5x	S/W ● 28 . 03 - 26 . 09 1	Operating mode  Date Mode
[<] 2x	3	Mode
[>] 1x	Return to AUTO	

The automatic summertime change will be suppressed but remains stored.

### Summertime beginning/end according to specified date i.e. Australia

Operating mode: S/W, summertime mode 2

Example: Dates 25.04. (beginning) – 29.10.95 (end)

Initial form: AUTO

{Key}	Display	Input
[C] 5x	S/W ● 28 . 03 - 26 . 09 1	Operating mode  Date Mode
[<] 1x	26 . 03 - 24 . 09 2	Mode
[>] 2x	26 . 03 - 24 . 09 2	
[<] 9x	25 . 03 - 24 . 09	Date Begin
[>] 2x	25 . 03 - 24 . 09	
[<] 1x	25 . 04 - 24 . 09	Date End
[>] 2x	25 . 04 - 24 . 09	
[<] 5x	25 . 04 - 29 . 09	Date End
[>] 1x	25 . 04 - 29 . 09	
[<] 1x	25 . 04 - 29 . 19	Date End
[>] 1x	25 . 04 - 29 . 10	
[>] 1x	Return to AUTO	

The automatic summertime change will be overwritten. The specified dates remain stored and must be corrected in the forthcoming year.

### Special function (S/W) 0

The actual regulation about the summertime change is valid until 1997 (incl.). If the EU should decide to change the summertime ending date to the 4th Sunday in October, this is pre programmed in summertime mode "0".  
Display: Beginning – date of last Sunday in March, ending – date of 4th Sunday in October.  
In the actual (1995) regulation remains, summertime mode "1" remains valid (see page 23).

### Mounting advice SC 78

