1. Contents

Installation must be carried out and inspected by a specialist or under his supervision.

For assembly:

- Suitable for use in ambient conditions with normal contamination levels
- Use the appropriate Grässlin accessories for wall surface-mounting.

  If correctly installed in accordance with VDE 0100, Part 40, the parts with which contact is still possible can be regarded as double-insulated (protection class II).

For operation:

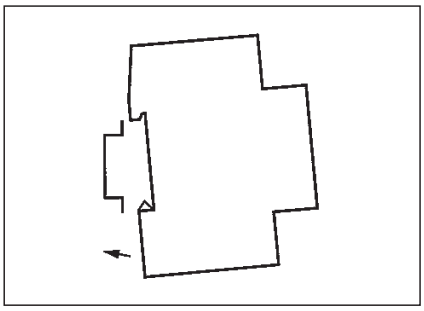
- We place high demands on the EMC interference resistance of the electronics when developing our products. The interference immunity achieved significantly exceeds the currently valid requirements of the appropriate EN standards.
- In individual cases, check whether additional protection measures are still necessary, e.g. the installation of appropriate components (varistor, suppresser diode, RC element).
- In extreme cases, it is recommended to install another module, e.g. isolating relay or switching contacter, mains interference suppresser filter.

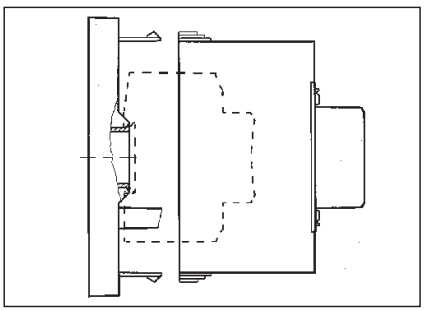
For operation:

- No metallic pointed objects (e.g. needles) may be used on keys pressed with a tool.

Important:

- Only safety extra-low voltage may be connected for operating the clock with safety extra-low voltage.
- When operating the clock with function extra-low voltage, either the mains voltage (230 V AC) or function extra-low voltage may be connected. In these cases, it is not permissible to connect safety extra-low voltage.





3.1 Assembly

Fit the time switch

- on a DIN rail
- Wall surface-mounting is optional
  Surface-mounting set for 6 modular spacings Article No. 03.59.0046.2

3.2 Putting into operation

The time and date have been set at the factory.
The time switch is in power-save mode.
Only the colon flashes.

Press any key:

- The time switch is active
- It shows the time (day of the week)

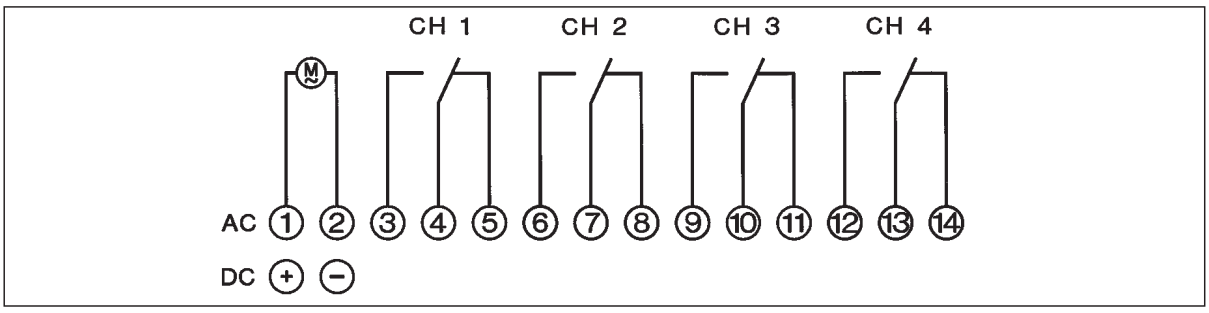
Note:
The time switch is automatically active after approx. 1–2 minutes

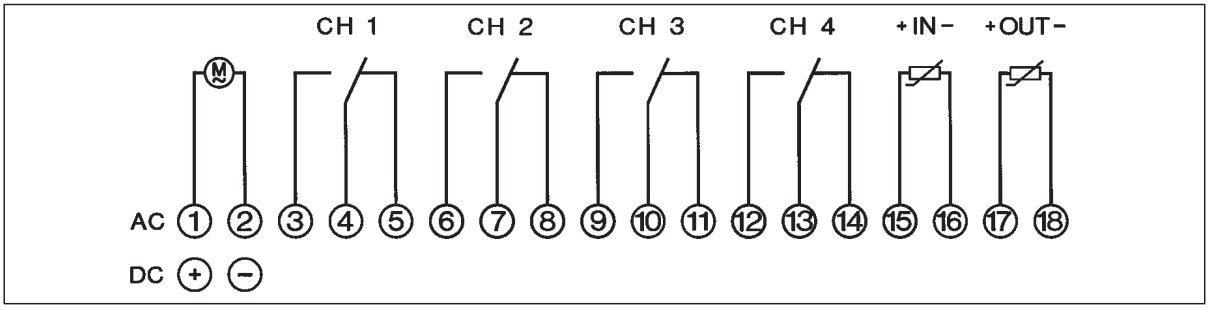
3.3 Connection

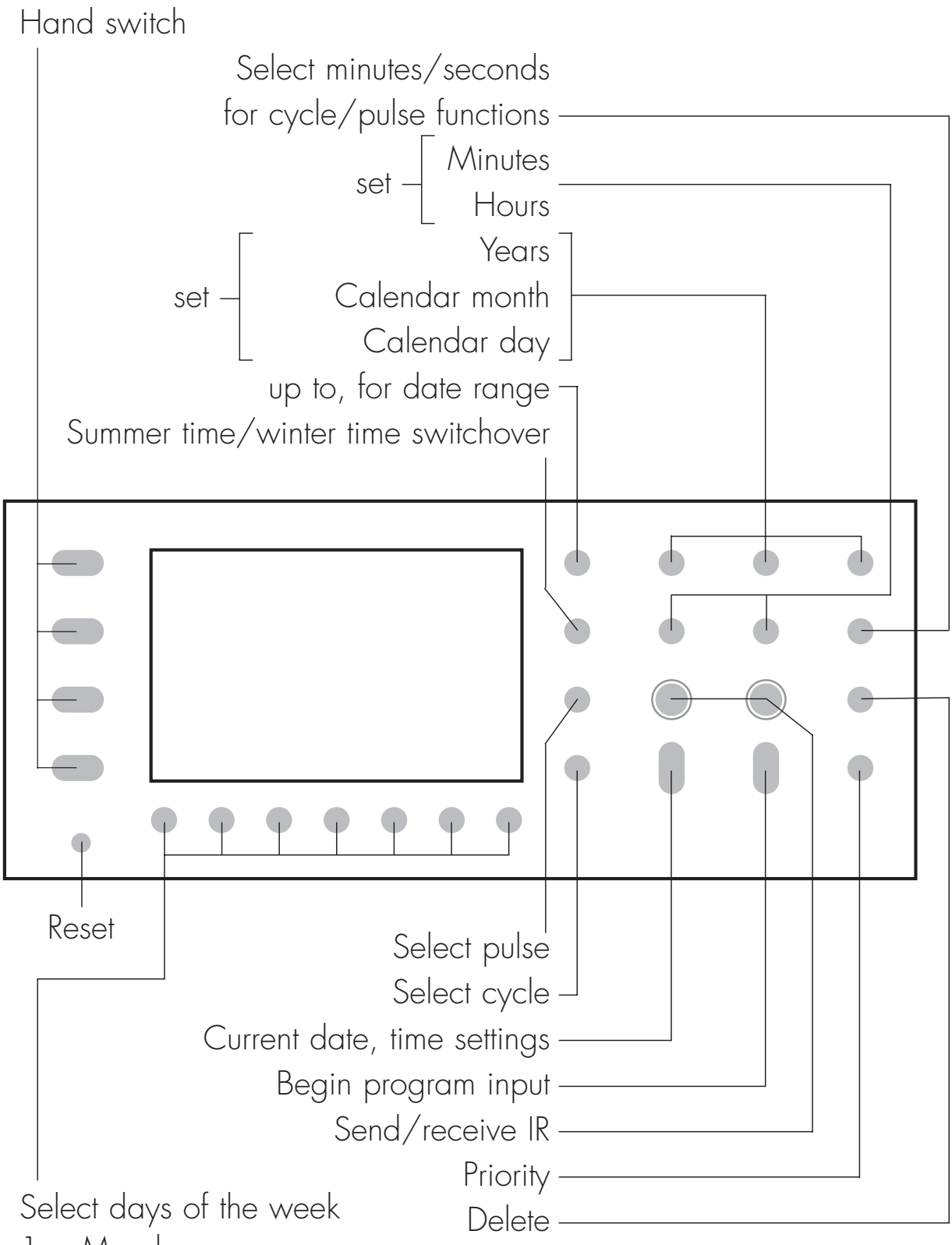
See information on the unit.

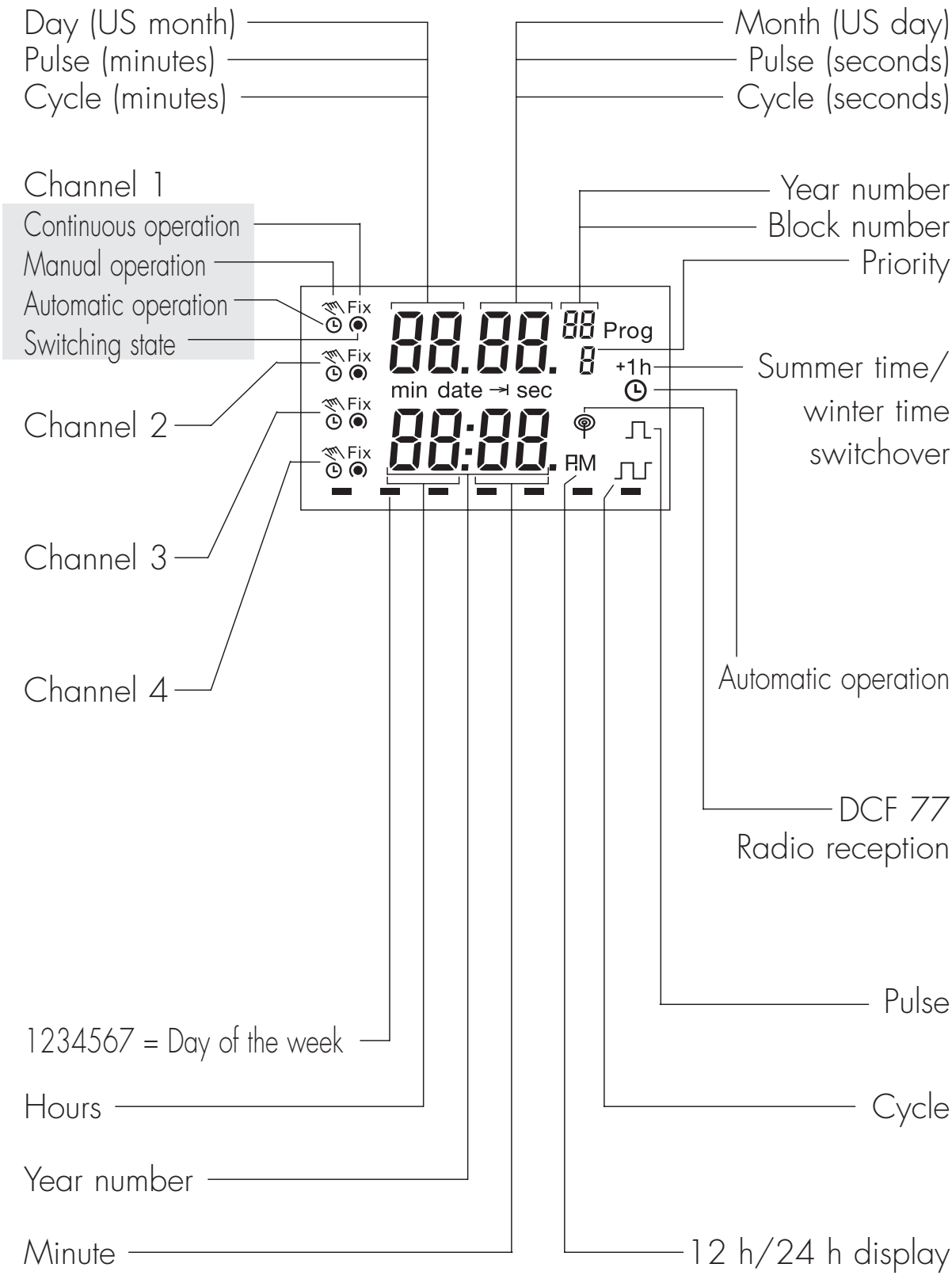
Press any key:

- The time switch is active
- It shows the date, time and day of the week






Hand switch
Select minutes/seconds
for cycle/pulse functions
set
Minutes
Hours
set
Years
Calendar month
Calendar day
up to, for date range
Summer time/winter time switchover
Reset
Select pulse
Select cycle
Current date, time settings
Begin program input
Send/receive IR
Priority
Delete
Select days of the week
1 = Monday
2 = Tuesday
3 = …


Day (US month)
Pulse (minutes)
Cycle (minutes)
Month (US day)
Pulse (seconds)
Cycle (seconds)
Channel 1
Continuous operation
Manual operation
Automatic operation
Switching state
Year number
Block number
Priority
Fix
Prog
+1h
min date sec
AM
PM
Channel 2
Channel 3
Channel 4
Summer time/
winter time
switchover
Automatic operation
DCF 77
Radio reception
Pulse
1234567 = Day of the week
Hours
Year number
Minute
Cycle
12 h/24 h display

6.1 Block numbers

Block numbers are automatically issued during programming.
There are block numbers from 00 ..... 99 (note block principle).

All switching commands without date assignment **always** receive the block number 00. (Priority 0 is **always** assigned to the block number 00 – it cannot be changed).
All switching commands with date assignment receive the block numbers from 01 ..... 99.
These are issued in ascending order.

6.2 Priority

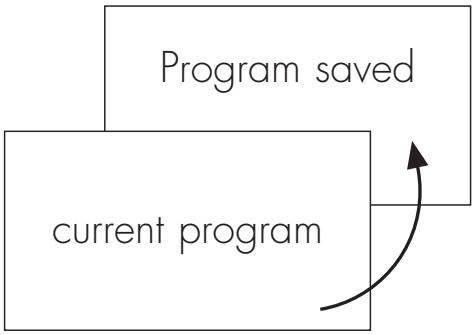
Switching commands with a date assignment can be occupied with different priorities.
If you start with a date when entering the program, a new block number and priority 2 are always offered.

The priority can be changed between 1 and 9,
(see Section 10).
The switching command with a higher priority is executed first.

6.3 Saving the switching program

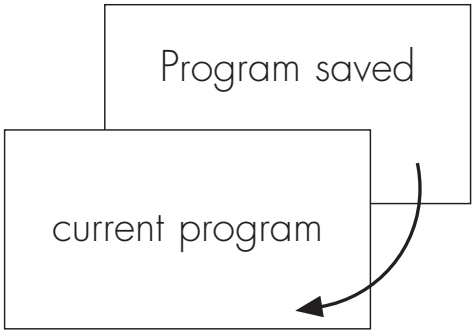
In the current operating state (colon flashing), the time switch offers the possibility of using the entered switching program with the function:

- **Back Up** – can be saved in "background"
- **Restore** – restores to the foreground
- **Change** – 2 switching program alternately



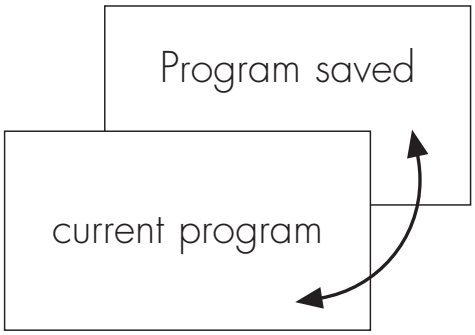
Back Up
with the key **Prog** and **1** (Day key)

The switching program in the foreground is preserved and can be changed as required.
If necessary, call up the original switching program again with the **Restore** function.



Restore
with the key **Prog** and **7** (Day key)

The switching program in the foreground can be changed as required. The saved **and** the current switching programs can be used alternately with the **Change** function.

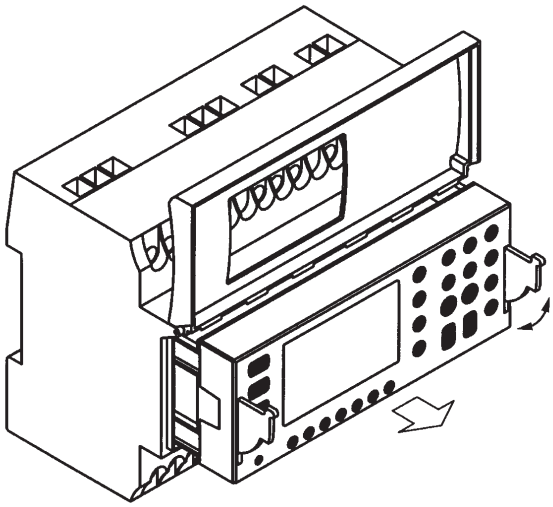


Change
with the key **Prog** and **4** (Day key)

Both switching programs can be used, changed and saved independently of each other.

6.4 Programming at the desk

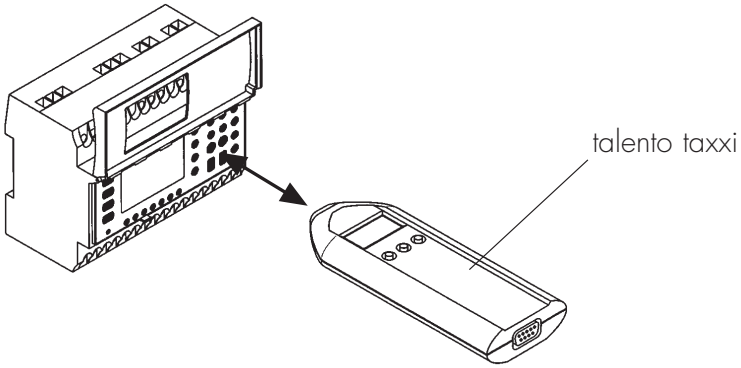
The control section can be removed and programming can be conveniently performed at the desk.



6.5 Programming with the talento taxxi (manual programming unit)

The **talento taxxi** offers the most convenient method for transferring the switching programs.

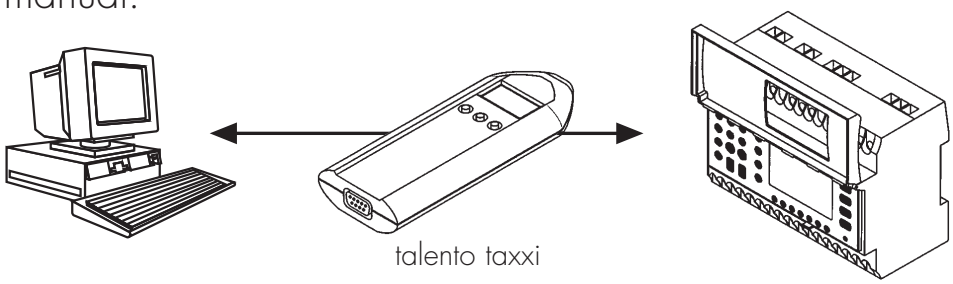
6.5.1 From time switch to time switch (from control section to control section – without mains voltage!). The switching programs are read out from one time switch and are transferred to the next one – see the **talento taxxi** operating instructions.



Note: If the data is **not correctly** transferred, the error message **Er 02** appears in the display of the time switch.

- Check the time switch type
  A switching program can only be transferred to a time switch of the same type.
- Transfer the program again.
  There may be a read/wire error.

6.5.2 Compile your switching programs on a PC with the software **talento dialog**. They are then transferred to the **taxxi** via the PC interface.
With the **taxxi,** the switching programs are now transferred to the relevant time switch (control section) via the infrared interface. Refer to the **talento dialog** manual.



talento taxxi

Note: Software and accessories can be ordered separately:

- **talento taxxi** set Art.No.: 07.01.0029.1
  consisting of:
  - Software talento dialog, including manual
  - talento taxxi (manual programming unit)
  - Cable 1:1 for the serial interface

- talento taxxi Art.No.: 07.01.0030.1

6.6 Service

6.6.1 Error messages

The time switch signals malfunctions:

- **Er 04** – in the event of incorrect access to the EEProm. This error message can appear in individual cases. Press any key and the time switch will continue to run normally.
  If this error message appears often, we recommend that the time switch be replaced.
  Consult your dealer.
- **Er 02** – in the event of incorrect transfer via the IR interface.
  Transfer the program again.
  There may be read/write errors.
- **Er 01** – If the battery voltage is too low.

6.6.2 Lithium battery (service life, type: see Technical data)

If the battery voltage falls to below a value which does not guarantee functioning of the time switch (error message Er 01) , replace the battery.

Order the battery from your dealer with the article number 09.02.0007.8.
Replacing the battery:

- Remove the control section, see 6.4
- Remove the battery casing
- Carefully remove the connector
- Insert a new battery
- Carefully insert the connector
- Replace the battery casing

The default values correspond to Central European Time (CET).
The time switch offers 3 operating modes. The date and time and the operating mode AU are set.

Operating modes:

- **AU** **Automatic switchover of the summer time control function, see Section 7.2.1**
  The switchover takes place on the legally defined date.
- **cHA** **Weekday-related switchover of the summer time control function, see Section 7.2.2**
  You enter the summer time end date valid for your location/ country.
  e. g. the first Sunday in April of the current year (start of summer time)
  the last Sunday in October of the current year (the end of summer time)
  In subsequent years, switchover always takes place on the right day of the week in the correct calendar week.
- **no** **No switchover, see Section 7.2.3**

12h/24h switchover (AM/PM)
The time switch is in the current operating state!

☞ Press the ⏲ key 1x.
The colon does not flash!

Press the 1-key (day of the week) 1x.

AM or PM appears in the display.

☞ Press the ⏲ key 1x.
The input is complete.

Change round date display (USA/GB method)

Press the 🕒 key 1x.
The colon does not flash.

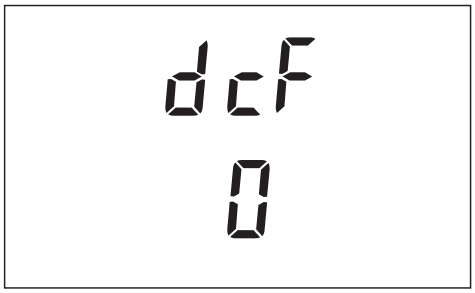
Press the 2-key (day of the week) 1x.

(Month, day)

Press the 🕒 key 1x.
The input is ended.

Adjusting to CET

If the time switch receives the time signal DCF 77, it may be necessary – depending on the location – for the display to be adjusted. You have the possibility of adjusting the time by up to +/- 2 hours with respect to the DCF 77.



Press the 🕒 key 1x.
The colon does not flash.

Press the 3-key (day of the week) 1x.
Factory setting „0 hours"

Select the difference with the h key.
(1; 2; 0; -1; -2)

Press the 🕒 key 1x.
The input is completed.

Note

With **all** settings/changes which you make, it is possible to abort or complete the entry/change at any time with the ⏲ key.

Date and time

☞ Press the ⏲ key 1x.
The colon does not flash.

☞ **Setting and changing the date:**
With the Day key – calendar day
With the Month key – calendar month
With the Year key – calendar year

☞ **Setting and changing the time:**
With the h key – hours
With the m key – minutes

☞ Press the ⏲ key 1x.
The input is completed.

The display shows the date and time.

Note:
The day of the week is automatically calculated and is shown as a cursor.

7.2.1 AU = Automatic switchover
7.2.2 cHA = Weekday-related switchover
7.2.3 no = No switchover

7.2.1 AU = Automatic switchover

This data can **only** be read at this point.
See Section 7.1 to change data.

Press the ⏲ key 1x.
The colon does not flash.

Press the + 1h key 1x.
Start of summer time,
e. g. 28.03 in the year 1999
and **AU** are displayed.

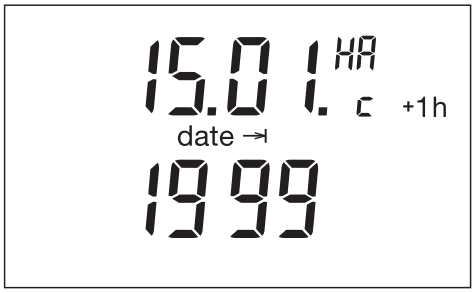
Press the →| key 1x., →| flashes.

End of summer time
e. g. 31.10 in the year 1999
and **AU** are displayed.

Press the ⏲ key 1x.
The input is completed.

The identifier **+ 1h** always appears in the cae of operating mode **AU**.

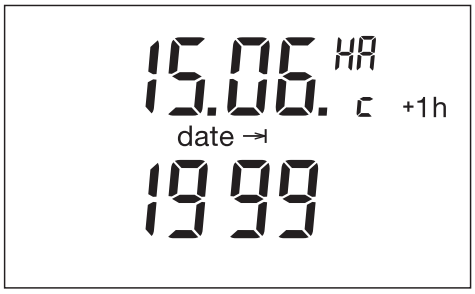
7.2.2 cHA = Weekday-related switchover



Press the ⏲ key 1x.
The colon does not flash.

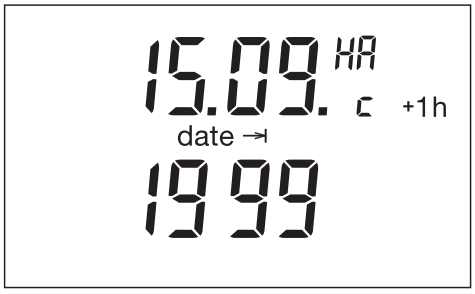
+ 1h key once or twice until **cHA** appears

Individual summer time start setting:
Calendar day with the Day key
Calendar month with the Month key



Press the →| key 1x, →| flashes.

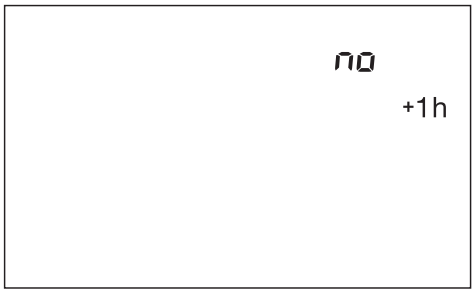
Individual summer time end setting:
Calendar day with the Day key
Calendar month with the Month key



Press the ⏲ key 1x.
The input is completed.

The identifier **+ 1h** automatically appears for operating mode **cHA**.

7.2.3 no = No summer time switchover



Press the ⏲ key 1x.
The colon does not flash.

Press the+ 1h key as often as necessary until **no** appears.

The time switch operates with the calendar, but **without** automatic switchover.
The manual switchover function can always be activated with the key + 1h.

Press the ⏲ key 1x.
The input is completed.
The display shows the date and the time.

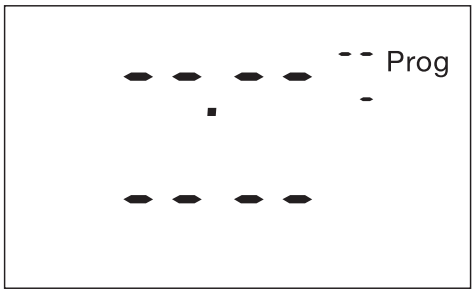
The input of the switching commands applies to all types of assignment

- Switching commands without date assignment, always in block 00, always with priority 0 (standard switching commands).
- Switching commands with single date, see Section 9.1
- Switching commands with date range, see Section 9.2
- Pulse switching commands, see Section 11
- Cycle switching commands, see Section 12

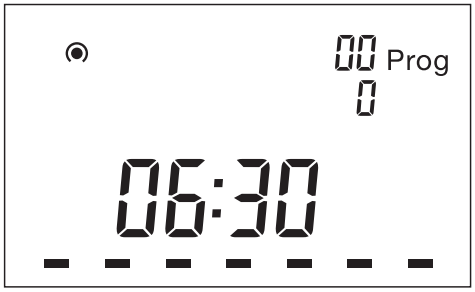
You determine the switching times and the switching state for the relevat channel.
Symbol ◉ ON; ○ OFF

- Switching commands for each channel the same, all ON or all OFF
- Switching commands for each channel different, ON and OFF

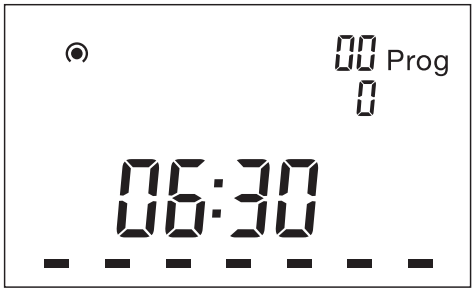
Note: In the case of multi-channel clocks, channel 1 is always offered. The switching state can also be deactivated for each channel. No symbol = no switching.



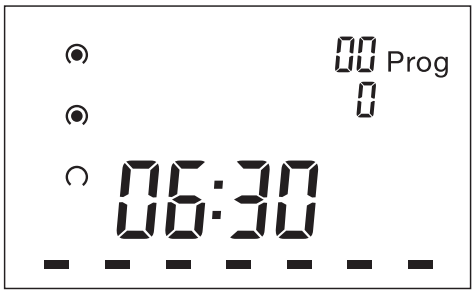
Select free memory location:
Press the Prog. Key 1x.
––.––
–– ––



Setting the switching times:
Hours with the h key
Minutes with the m key



Setting the days of the week:
1 2 3 4 5 6 7 (Monday … Sunday)



Setting the switching state:
With the 1/0 key for each channel, separately select ◉ = ON; ○ = OFF

Briefly press the Prog. key 1x.
The switching command is saved.

A free memory location is displayed – for additional inputs.

or

Press the ⏲ key 1x.
The input is completed.

The display shows the date and the time.

- Switching commands to which a date is assigned are arranged in blocks. Priority 2 is assigned at the same time. Change priority – see Section 10
- The block number is assigned automatically (01 to 99) (switching commands without date assignment always in block 00, always with priority 0), see Section 10
- Several entries to which particular switching times are assigned can be in one block.

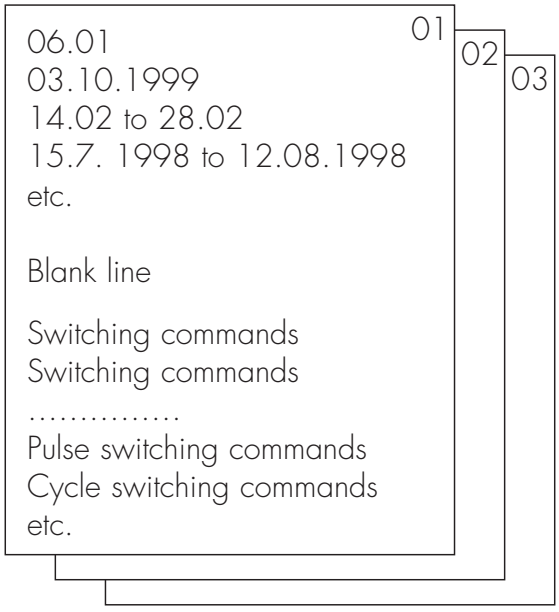
These entries are possible:

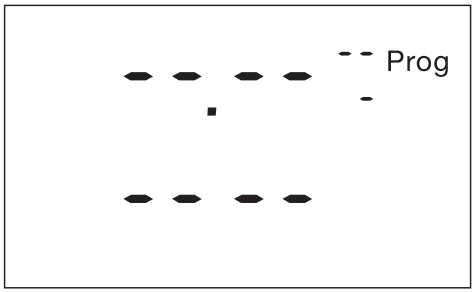
- Single date without date
- Single date with year
- Date range withour year
- Date range with year

- Blank line

- Switching commands (standard)
- Pulse switching commands
- Cycle switching commands

Example:





Select free memory location:

Press the Prog. key 1x.

––.––

–– ––

A free memory location is displayed for entering:

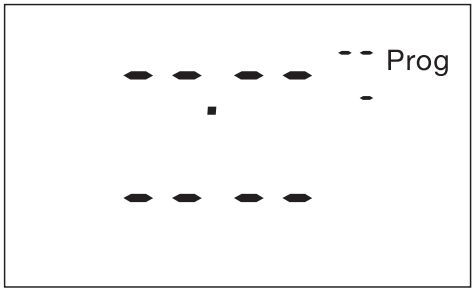
– Single date without/with year, see Section 9.1
– Date range without/with year, see Section 9.2

Press the Day, Month or Year key 1x.

The current date, a new block number and the priority 2 are always offered.

Enter the enquired date:
(without or with year)
Calendar day with the Day key
Calendar month with the Month key
Calendar year with the Year key

Change priority, see Section 10



Press the Prog. key only **briefly**.

This input is saved.

A free memory location is displayed – for additional inputs.

Have you made all date entries for this block?
If so, now enter the relevant switching commands, see Section 8

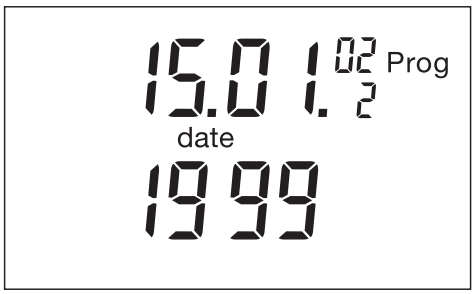
or

Press the ⏲ key 1x.
The input is completed.

The display shows the date and the time.

Press the Day, Month or Year key 1x.

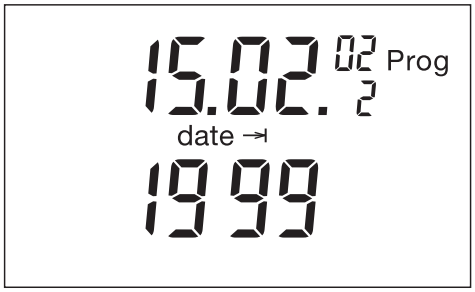
The current date, a new block number and priority 1 are always offered.



Enter the enquired starting date:
(without or with year)
Calendar day with the Day key
Calendar month with the Month key
Calendar year with the Year key

Change priority, see Section 10

Press the →| key 1x. →| flashes.



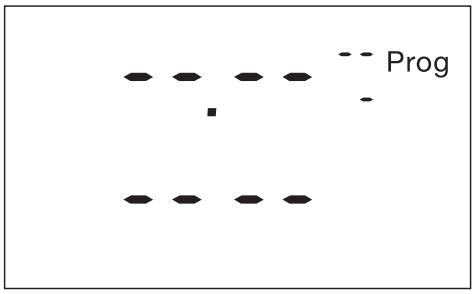
Entered the required end date:
(without or with year)
Calendar day with the Day key
Calendar month with the Month key
Calendar year with the Year key

You can check/read and, if necessary, change the starting date or the end date.

Press the →| key alternately.

Press the Prog. key only **briefly**.

This input is saved!



A free memory location is displayed for further entries.

Have you made all date entries for this block ?
If so, enter the relevant switching commands, see section 8

or

Press the ⏲ key 1 x.
The input is completed

The display shows the date and time.

Switching commands with the data assignment can be occupied with different priorities (block number 00 and priority 0 is defined for switching commands without date assignment).

If you start with a date during programming, a new block number and priority 2 are always offered = default for a single date.
If a date range is entered – with the key →| –, priority 1 is automatically assigned. The priority can be changed between 1 and 9. The switching command with the higher priority is executed first.

Example: Within a date range, e. g. 9.6 to 30.6 (priority 3), it is possible to assign priority 4 or higher to a single day, e. g. 22.6, but **only** in separate blocks.

Block 01 Priority 3	Block 02 Priority 4
09.06 bis 30.06 etc.	22.06 etc.
Blank line	Blank line
Switching commands Switching commands …… Pulse switching commands Cycle switching commands etc.	Switching commands Switching commands …… Pulse switching commands Cycle switching commands etc.

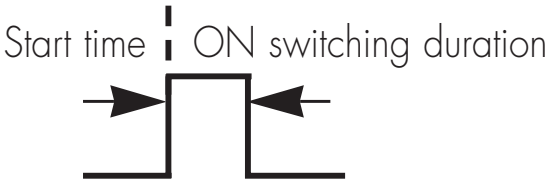
Press the Prior. key step-wise.
The numbers change:
2 – 3 – 4 – … – 9 – 1 – 2 – …
etc.
1 – 2 – 3 – 4 – … – 9 – 1 – 2 – …

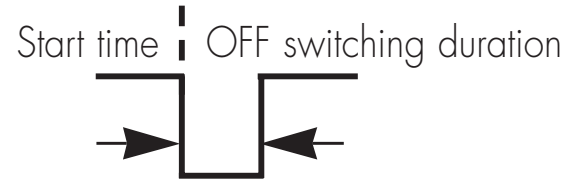
If a load with a higher switching frequency – in the seconds range – is switched ON and OFF, it must be ensured that adverse effects on the quality of lighting units (flicker) and faults in radio and television reception are avoieded

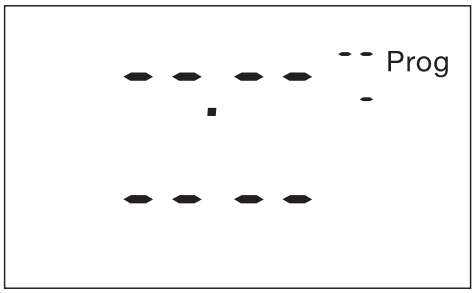
You determine the times for pulse switching commands, symbol ⎍⎍. Pulse times are: 01...99 seconds or 01...99 minutes.
A pulse switching command consists of: Start time and ON or OFF switching duration.

Example:

Start time	Monday to Friday	09.00
ON switching duration	10 seconds	







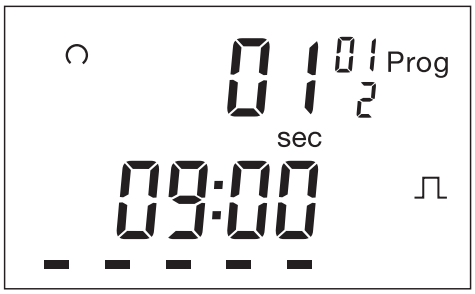
Select a free memory location:

Press the Prog. key 1x.

––.––

–– ––

Input as required:



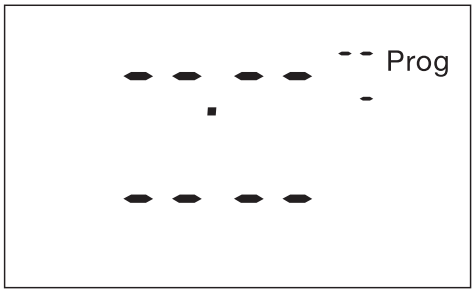
- Switching command, weekday(s), switching state see Section 8
- Single date without/with year, see Section 9.1
- Date range without/with year, see Section 9.2

Press the ⎍⎍ key 1x.
01 seconds are offered.

Preselection for seconds or minutes
m/s ⎍⎍⎍ key

Press the ⎍⎍ key step-wise.
Set the pulse time from 01 ... 99.

Note: If the key is pressed for longer, adjustment takes place in steps of 05.



Press the Prog. key 1x only **briefly**.
The switching command is saved.

A free memory location is displayed – for additional inputs.

or

Press the ⏲ key 1x.
The input is completed

The display shows the date and the time.

If a load with a high switching frequency – in the seconds range – is switched ON and OFF, it must be ensured that adverse effects on the quality of lighting units (flicker) and faults in radio and television reception are avoieded

You determine the times for cyclical switching commands.
Symbols:  = cycle duration (2...99 sec. or 1...99 min.)
 = ON switching duration (1...99 sec. or 1...99 min.)

A cycle switching command consists of
- Start time
- Cycle duration (ON switching duration + pause)
- ON switching duration

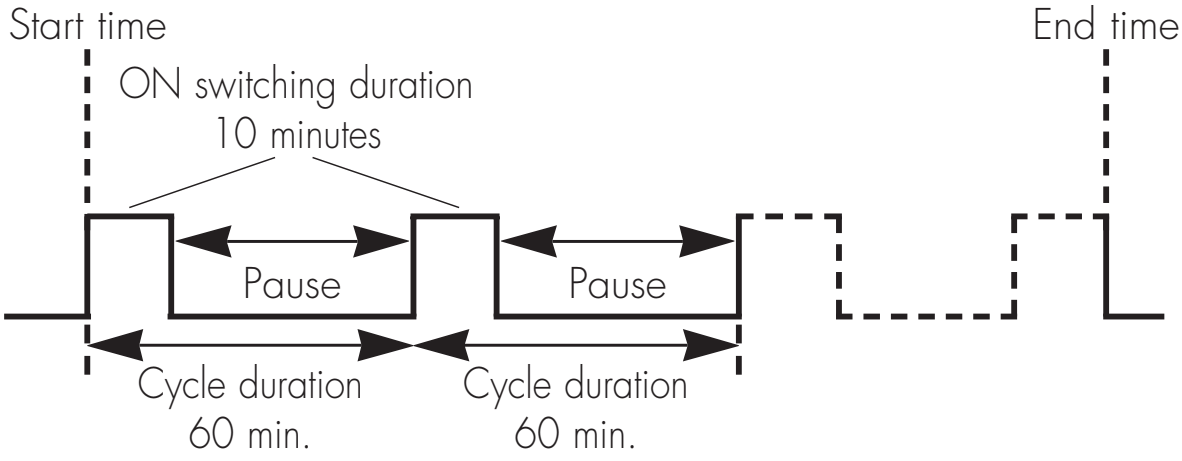
If you assign no End time to a cycle switching command, it operates continuously.
In practice, an End time will in most cases be a standard OFF switching command.
However, an End time must be a standard EIB switching command if its application is to be switched ON at the end of the cycle.

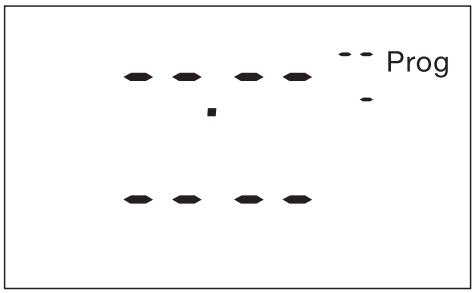
1st Example:

Start time	Monday 09.00
Cycle duration	60 minutes
ON switching duration	10 minutes
End time	Friday 19.00

2nd Example:

Start time	Monday **to** Friday 09.00
Cycle duration	60 minutes
ON switching duration	10 minutes
End time	Monday **to** Friday 19.00





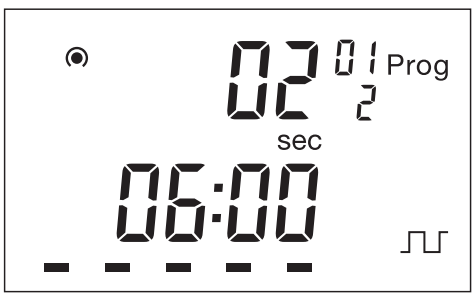
Select free memory location:

Press the Prog. key 1x.
––.––
–– ––

Enter as required:

- Switching command, weekday(s), switching state, see Section 8
- Single date without/with year, see Section 9.1
- Date range without/with year, see Section 9.2

Press the ⎍⎍ key 1x.
01 minutes are offered.

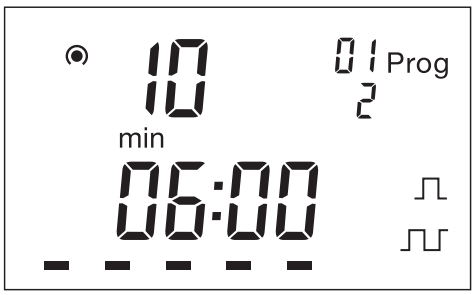


Preselection for seconds or minutes
m/s ⎍⎍ key

Setting the cycle time from 01 ... 99

Press the ⎍⎍⎍ key step-wise

Note: If the key is pressed for longer, adjustment takes place in increments of 05.



Setting the ON switching duration, 01 ... 99

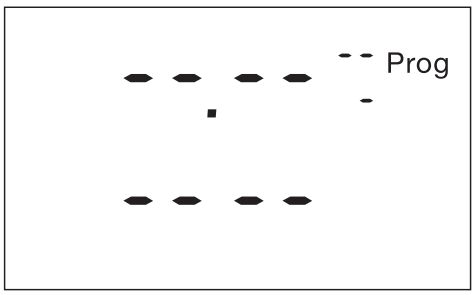
This can never be greater than the previsously set cycle time.

Press the ⎍⎍ key step-wise.

Press the Prog. key 1x only **briefly**. The switching command is saved.

A free memory location is displayed – for additional inputs.

or

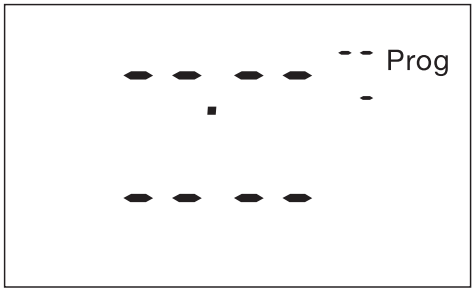


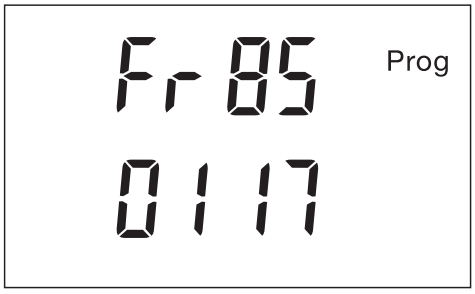
Press the 🕒 key 1x. The input is completed.

The display shows the date and the time.

- You read the number of free memory locations/block numbers
- You read the program contents in steps
- You change, overwrite the program contents
- You delete the program contents

13.1 Read





Select free memory location:

☞ Press the Prog. key 1x.

––.––

–– ––

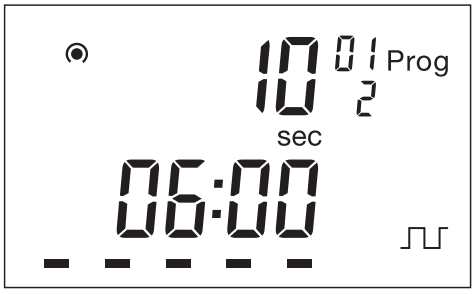
☞ Press the Prog. key **only** briefly.

The number of free block numbers and the number of free memory locations are displayed.

☞ Press the Prog. key again only **briefly**.

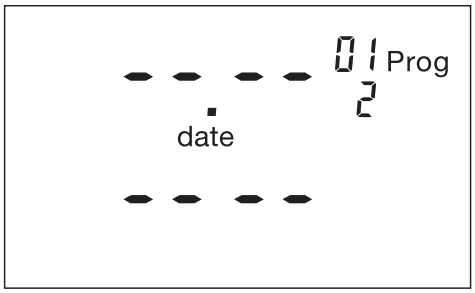
A free memory location for entering the program is displayed (block number 00, priority 0)

Read contents of block 00:



☞ Press the Prog. key only **briefly** step-wise. The contents are displayed in turn.

If a cycle switching command is displayed, ⎍⎍⎍ appears in the display. Press the ⎍⎍ key 1x. Read the ON and OFF switching duration.



Read contents of block 01 to 99:

Press the Prog. key 1x **for approximately 1 second**.
Your are in block 01.

Read the contents of this block:

Press the Prog. key only **briefly** step-wise. The contents are displayed in turn.

If a date range is displayed, „date →| " appears in the display. With the →| symbol key, read the end date and switch back to the start date.

If a cycle switching command is displayed, ⎍⎍ appears in the display. Press the →| key 1x and read the ON or OFF switching duration.

Again press the Prog. key for **approximately 1 second**. You are in the next block. Read the block contents, see above.

It is possible to exit or finish reading at any time with the 🕒 key.

The display shows the date and the time.

13.2 Change

Every program contents can be changed/overwritten individually. With the Prog. key (read), call up the contents which you want to change/overwrite.
Changing is performed in the same way as entering new data (see the relevant Section).

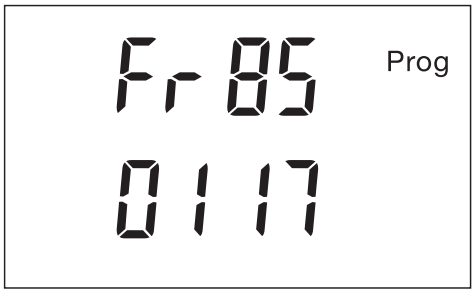
- Switching commands, see Section 8
- Date, see Section 9
  – Single date without/with year, see Section 9.1
  – Date range without/with year, see Section 9.2
- Priority, see Section 10
- Pulse switching commands, see Section 11
- Cycle switching commands, see Section 12

13.3 Delete – Individual switching commands

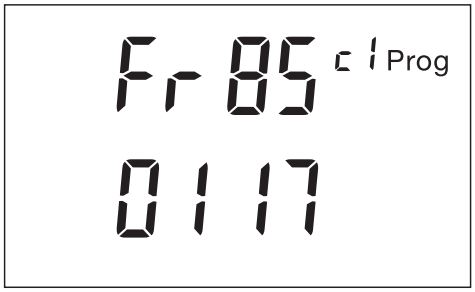
With the Prog. key (Read – see Section 13.1) call up the contents which you want to delete.
In the case of combined switching commands, with a single date, with a date range, with pulse or cycle, only the part which can be read in the display is deleted.

Press the Clear key 1x. These contents are deleted.

13.4 Delete – all switching commands



Press the Prog. key 2x.
The number of free block numbers and the number of free memory locations is displayed.



Press the Clear key 1x.
c l also appears in the display and flashes.

Press the Clear key 1x.
All contents are deleted.

The display shows the block number 0 and the number of the max. memory locations.

13.5 Reset

Important! No metallic pointed objects (e. g. needles) may be used for keys which are pressed with a tool.

The Reset key is only required in the event of extreme faults. The electronics is brought to a defined state, but all data is preserved.

You change – manually – the current switching state.
However, the individually set switching program is preserved.

1 for channel 1 2 for channel 2
3 for channel 3 4 for channel 4

= Automatic	= Manual mode	FIX = continuous operation
= OFF	= ON	FIX = Continuous ON
= ON	= OFF	FIX = Continuous OFF
The switching state corresponds to the entered program.	You change – manually – the current switching state. The next switching command in the program is executed again automatically.	You change – manually – the current switching state. Only with the key can you switch from manual operation back to automatic operation.

15. DCF 77 radio operation

The time switch receives the time signal DCF77 with an additional antenna.

! Follow the separate instructions !

While the time swtich is being synchronised, the symbol flashes in the display. It is then displayed continuously.

	1, 2, 3 and 4-channel year clock
Dimensions (H x W x D) mm	45 x 108 x 60
Distributor cut-out mm	45 x 108
Weight g (approx.)	400
Connection	See unit imprint
Power consumption	See unit imprint
Switching capacity	
– Ohmic load (VDE, IEC)	16 A/250 V AC
– Inductive load cos phi 0,6	2,5 A/250 V AC
– Incandescent lamp load	1000 W
Switching output	Potential-free
Switching contacts	1, 2, 3 or 4 changeover contacts
Running accuracy	± 1 s/day at +20° C
Running reserve type	Lithium
Running reserve	6 years from the factory
Shortest switching time	1 second
Programmable	Every minute
Memory locations	400
Switching preselection	Yes
Manual switch	Automatic/preselection Fixed ON Fixed OFF
Pulse switching commands	1 to 99 sec./1 to 99 min.
Cycle switching commands	2 to 99 sec./1to 99 min.
Switching state display	Yes
Block formation of weekdays	Free assignment
Summer time/winter time switchover	Automatic/freely selectable
Ambient temperature	- 25° C ... + 55° C
Protection class/protection type	II/IP 20
Connection type	Captive ± screw terminals
Can be lead sealed	Yes