



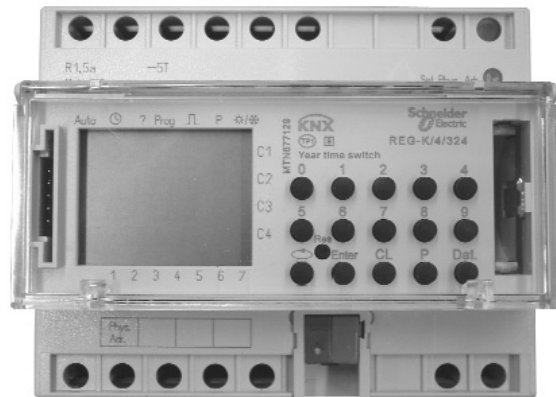
Year Time Switch REG-K/4/324

Art. no. MTN677129

Year Time Switch REG-K/4/324 DCF77

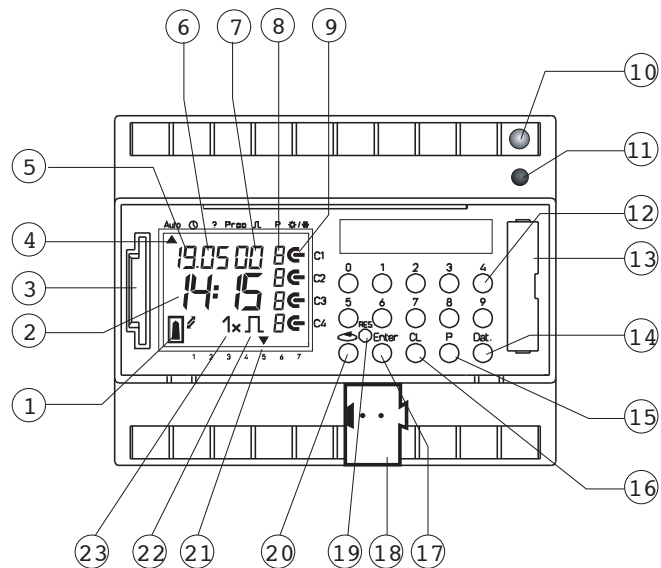
Art. no. MTN677029

📖 **Manual**
4-channel year time switch

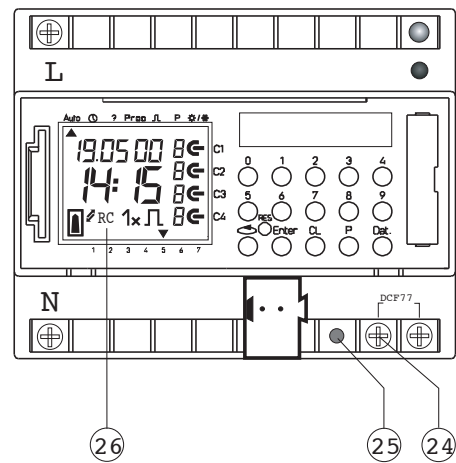


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Year time switch REG-K/4/324



Year time switch REG-K/4/324 DCF77



1.0 Description

- 1 Display data exchange with memory card
- 2 Display hours
- 3 Interface
- 4 Cursor for program selection
- 5 Display date day
- 6 Display date month
- 7 Display year
- 8 Random indicator /P 1 .. 9 / Manual ON (H  / Manual OFF (H )
- 9 Display status ON =  OFF = 
- 10 LED-BCU
- 11 BCU-Prog.button
- 12 Buttons 0 – 9 for program entry
- 13 Battery compartment
- 14 Button for entry of date switchings
- 15 Button for entry of priority programs/changes
- 16 Button for cancellation of programs and program steps
- 17 Button for entry of input
- 18 Bus-connection
- 19 RES = Reset / the micro-processor makes a defined new start
- 20 Program selection button for menu selection
- 21 Cursor for display of days of the week 1 = Monday, 2 = Tuesday ...
- 22 Display for pulse programming
- 23 Display 1 x shows single switchings
- 24 Bus connection terminal DCF
- 25 LED lights up with DCF antenna reverse polarity
- 26 Display DCF77 reception

2.0 Features

- 4-Channel Yearly Time Switch
- Time switch programming or PC programming using Windows 95 / 98 / 2000 / WIN NT with software
- The time switch can be programmed up to the year 2063 in advance
- Data transfer and security possible with memory card
- Data can be transferred from time switch to time switch, from time switch to PC and vice versa
- **Functions:** switching, dimming, transmitting time, receiving time
- BCU integrated in unit
- 324 switchings for free block formation of channels and week days
- Stipulating public holidays without a fixed date
- Permanent switching times by means of EEPROM
- Day/Week/Year program
- Random program
- Pulse program
- Switching times: ON or OFF delay
- automatic stipulating of public holidays without fixed date
- 1x-function for all date-related switching times
- 10 priority programs consisting of 10 individual weekly programs per channel
- Time limited permanent switching ON/OFF
- Approx. 1.5 years battery reserve by means of exchangeable environmentally friendly lithium cell
- Option: radio controlled
- Up to 10 time switches or even products can be connected to one radio antenna.

3.0 Application

The time switch controls connected bus participants via a group address. It transmits either 1, 2 or 8-bit telegrams, including the time. With the time program and the corresponding application, the time can be transmitted and received via the BUS. Transmission of current switch-time or date telegrams is only possible in automatic mode.

3.1 Safety Instruction



DANGER

Risk of fatal injury from electrical current.

All work carried out on the unit may only be performed by skilled electricians. Observe the regulations valid in the country of use, as well as the valid KNX guidelines.

The time switch:






- > Must only be operated with the data from the product database
- > Must only be used in dry areas
- > The time switch is suitable for use in environmental conditions with normal pollution
- > The time switch is suitable for mounting on the 35 mm top-nat rail

Unauthorised modifications to the equipment render the warranty invalid.

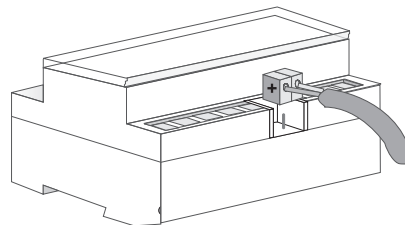
3.2 Installation Instructions

In spite of expensive protection measures, exceptionally strong magnetic fields can lead to the destruction of the micro-processor controlled time switch.

We therefore recommend attention be given to the following points before installation:

-  Use separate lead for the mains voltage supply.
-  Suppress inductive loads with suitable RC filters.
-  Do not mount product in direct proximity to sources of interference as e. g. transformers, contactors, PCs and TV and communication equipment.
-  After suffering interference, we recommend, before re-setting, a RESET with a new initial set up (chapter 5.3).
-  Strongly heat-generating products on the right side of the product shorten the life of the battery.

3.3 Electrical Connection



Busline

3.4 Technical Data

Description:	Yearly-Time-Switch
Program type:	Day/Week
Operating voltage:	Bus-connection
Interval consumption:	< 150 mW incl. BCU
Memory locations:	324
Minimum switching time:	1 second/minute
Minimum pulse:	1 second
Switching accuracy:	Accurate to the second
Accuracy:	±1 sec./day at 20 °C
Power reserve:	Lithium Cell 1.5 years at 20 °C
Permissible ambient temperature:	−10 °C ... +50 °C (−10T50)
Protection class:	II if installed according to EN 60335
Enclosure type:	IP 20 in accordance with EN 60529
Type:	1 BSTU in accordance with EN 60730-1, -2, - 7
Operating voltage for supply	
of the antenna:	230 V - 240 V AC -10 % +6 %
Antenna for the reception of the radio signal is required	
Time base:	Radio exact (with power reserve quartz operated)
Max. distant of the radio antenna:	200 m
Enclosure type:	IP 54 in accordance with EN 60529
Max. loading:	10 products

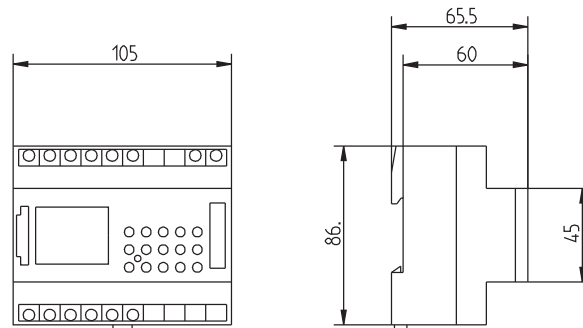
Note deviating technical data on the rating plate
Rights to technical improvements are reserved.

Note

The time switches conform to the European Regulations 73/23/EEC (low voltage rules) and 89/336/EEC (EMV-Regulations).

If the time switches are used with other products in one installation, attention must be given to ensure that the whole installation does not cause radio interference.

3.5 Illustration of Dimensions

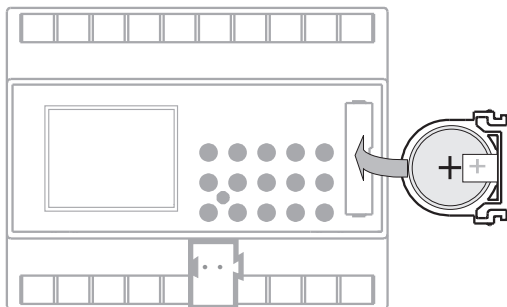
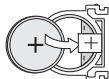


4.0 Power Reserve

In the event of a power failure, the battery back-up provides for the maintenance of correct time (approx. 1.5 years). Even without power and with a drained battery, the switching times remain permanently stored.

4.1 Battery Loading

- Note the polarity of the lithium battery.
- Insert the lithium battery into the holder (see diagram 1).
- Push the battery holder into the battery compartment.
- Press the battery holder down, until it audibly locates.



4.2 Battery Changing


Important Instructions

Battery changing with mains voltage

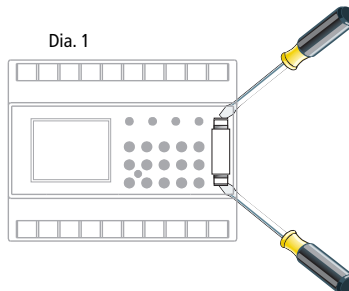
All memorised program data is maintained

Battery changing without mains voltage

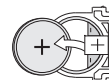
Note: date and time are lost.

1. Lift the battery draw with a suitable screw driver (see diagram 3).
2. Remove the lithium battery from the holder (see diagram 2).
3. Note the polarity of the new lithium cell.
4. Insert the Lithium battery into the holder (see diagram 1).
5. Push the battery holder into the battery compartment.
6. Press the battery holder down until it audibly locates.
7. Dispose of lithium battery in an environmentally friendly way .

Dia. 1





Dia. 2






5.0 Initial Operation

Ensure that the lithium battery is located (Chapter 4.1)

Press the  button to move the cursor .

The cursor moves each time a menu item button is pressed.

Cursor below symbol:

Auto	(Automatic Program) – Programmed switching times determine the switching programm – Switching override (Manual ON/OFF) – Random ON/OFF
	– Set / change date and time
?	– Interrogate, change, cancel, completely cancel
Prog	– Programming of date, weekly and 1x switching times
	– Programming of date, weekly pulses, 1x pulse, ON and OFF switching delays
P	e.g. public holiday, vacation, or holiday program
	– Programming and change of Summer/Winter time switching

Ending Programming: use  button, and place cursor  into following position **Auto**  **?** **Prog**  **P** .

5.1 Entry Adjustment

The time switches contains a prompt facility. Follow the flashing symbols. They show the programming sequence.

Entry Adjustment:

What to do when a wrong value has been entered in error?

Cancel the program step again:

- press button **CL** = one step back
- press button **CL** repeatedly = repeated steps back

When wrong value flashes:

- enter correct value with buttons **0 ... 9**

or when programming channels or week-days:

or in the event of a wrong entry:

- press the same button again

Note:

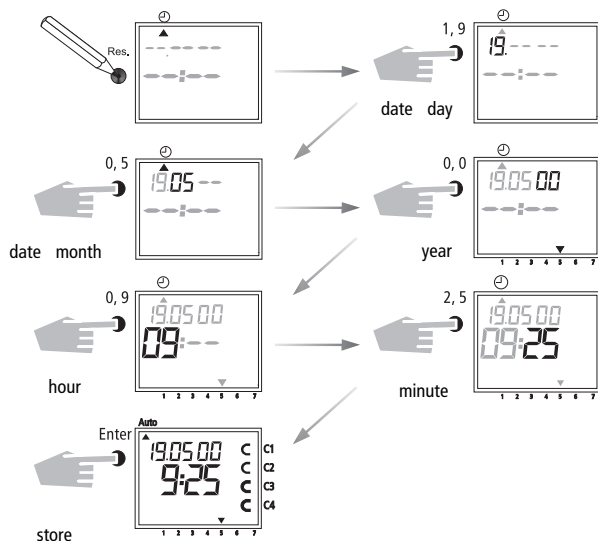
Only the last entry will be cancelled.

5.2 Setting date and time

On initial operation press button **RES** with a pointed object e.g. pencil, and afterwards release it.

Example:

The time switch is to be set up on 19.05.2000 at 9.25



Note:

After the initial operation (Chapter 5.3) automatic Summer/Winter time is already programmed.



Basic setting is for Central Europe: **dat 1**.



If another or no change over standard is required, this can be changed at any time, as described in Chapters 5.4 – 5.5.

5.3 Selection Schedule for Automatic Summer-/Winter time

Setting	Commen- cement	Commen- cement	Area
dat 0	no change	no change	
dat 1	last Sunday in March 2:00 → 3:00	last Sunday in October 3:00 → 2:00	EU
dat 2	last Sunday in March 1:00 → 2:00	last Sunday in October 2:00 → 3:00	UK
dat 3	1st Sunday in April 2:00 → 3:00	last Sunday in October 3:00 → 2:00	North America
dat 4	individual Summer/Winter time table, programmable only with software		

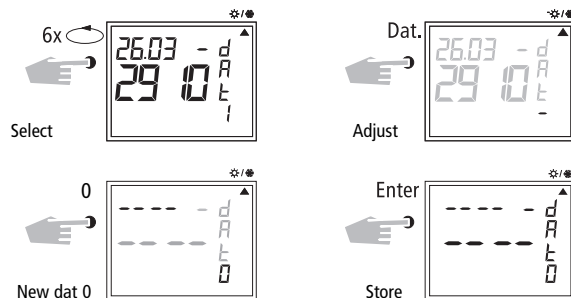
5.4 Changing Automatic Summer/Winter time

Default REG/K4/324 dat 1

Select the new switching time (Chapter 5.3).

Example: basic setting **dat 1**
Change to: new regulation **dat 0**

Note: For radio controlled time switch (REG-K/4/324 DCF77) **dat 0** is necessary.



Back into automatic program with button .

5.5 Radio Time Switch

The operation of the radio time switch is exactly the same without DCF-antenna. The correct time, date and Summer-/Wintertime change-over set themselves automatically with the DCF77 radio receiver.

Interesting Details:

- Accuracy of the radio receiver ± 1 sec. in 1,000,000 years
- Transmitter location is Mainflingen near Frankfurt
- Transmitting radius of the transmitter approx. 1000 km
- Synchronisation is effected after initial setting-up and then daily at night.

5.6 Connection and Adjustment of the Radio Antenna

We recommend the following mounting positions:

- outside the control box (at least 4 m away)
- under the roof
- or in a protected position out of doors

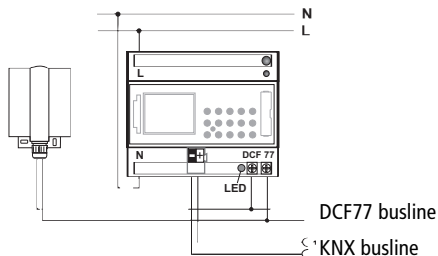
Avoid mounting positions near:

- radio transmitting installations
- radiological equipment
- television and personal computers

A. Operation without DCF77 radio reception

1. Connect the bus line only.
2. In this case, set the summer/winter change to the correct changeover standard, see Chapter 5.3/5.4.

B. FW/S connection with radio reception



1. First connect the radio time switch to the 230 V mains supply and then to the bus line.
2. Connect only antenna to the time switch. In this case, the polarity of the connection is **very important**. The antenna signal is safety extra-low voltage. Ensure that there is safe isolation from the voltage supply.

C. Adjusting the DCF radio antenna

1. Set the radio antenna so that the LED installed in the front flashes at one second intervals.



D. Connecting several radio time switches to the DCF antenna

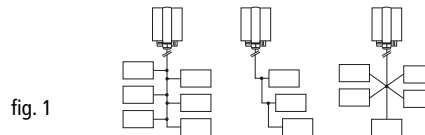


fig. 1

1. First, connect only **one** time switch to the 230 V mains supply, then connect to the bus line.

Observe the following when connecting the antenna:

2. Only after this, connect further time switch devices **to the antenna**.

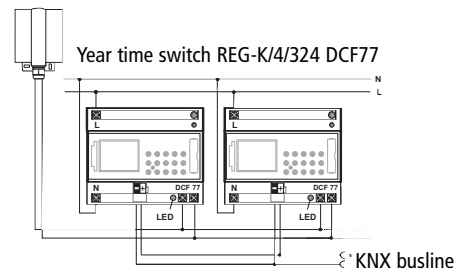


fig. 2

The connection to the **DCF** antenna may take the form of a star, bus or tree topology, see Fig. 1).

Note: If an LED at the **DCF** lights up, simply reverse the polarity at this connection!

3. **Following this**, connect the other devices first to the 230 V mains supply and then to the bus line.
4. Align the antenna, see Chapter C.

5.7 Initial Operation of the Radio Time Switch

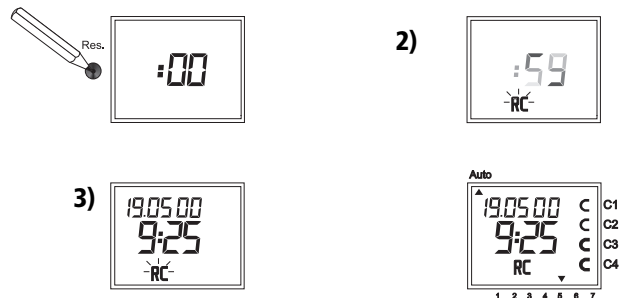
Note: **A. Setting-Up Automatically**
During synchronisation press **no** buttons!

The synchronisation test would be discontinued immediately.
To obtain a new start after this, **RES** button must be pressed again.

1. The display counts from **00** to **59** (see illustration 2)
Depending on the reception quality of the DCF77 signal, this procedure can be repeated several times.
2. If the time switch has received the whole of signal, **RC** goes on flashing.
Only after a further signal is received, does the **RC** symbol stop.
The status of the channels are displayed (see illustration 3).
The clock is now ready.

Tip: **B. Setting-Up Manually**
If the clock, on the initial set-up, does not synchronise even after several attempts, possibly because of a disturbed reception signal, we recommend setting-up as described in Chapter 5.3.
The clock will then try once more to synchronise itself on the signal, during the night.

Example: The time switch has synchronised itself on 19.5.2000 at 9.25.



5.8 Forced Transmitter Call

The synchronisation of the time switch is effected after the initial setting-up, then daily between 1.58 and 3.13.

A radio synchronisation can be called up manually during the day (transmitter call).

Start of the Transmitter Call

1. Press **Dat** Button for approx. 3 secs.
2. Then release.

The timeswitch synchronises itself on the DCF77 signal.

In the LCD display can be seen:

The **RC** symbol flashes only during a DCF77 synchronisation!

If the time switch has synchronised itself, a program review takes place. The channels take on, afterwards, the specified switching positions, from the individual program.

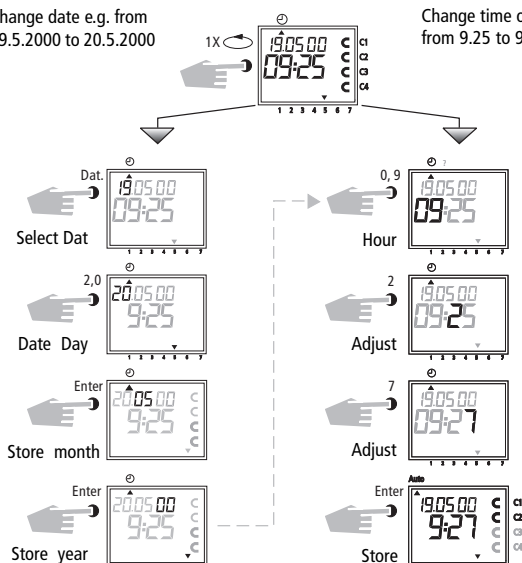
The **RC** symbol is permanently in the LCD display.

5.9 Changing Date / Time

With the cursor in Pos. ①, any flashing value, the actual time or date, can be changed with the buttons **0 .. 9**.

Change date e.g. from
19.5.2000 to 20.5.2000

Change time only e.g.
from 9.25 to 9.27



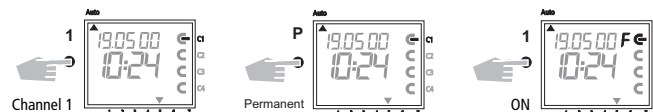
- Press **Enter** repeatedly, until the cursor is below Auto
- or follow the line and change the actual time.

6.0 Manual Intervention in the Program

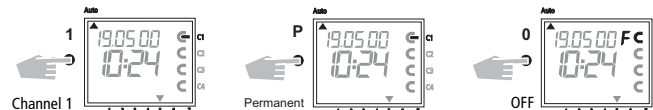
6.1 Permanent ON / OFF

Each channel can be manually switched in automatic menu to permanently **ON**. A permanent switching has highest priority. The channel remains in the permanently **ON** switching position until manually cancelled.

Example: Channel 1 permanent **ON**.



Example: Channel 1 permanent **OFF**.



Each channel can be manually switched in automatic menu to permanently **OFF**. A permanent switching has highest priority. The channel remains in the permanently **OFF** switching position until manually cancelled. After cancellation of a permanent switching the time switch effects a program recall. This results in the time switch checking the stored program and implementing the correct switching condition.

6.2 Manual ON / OFF (override switching)

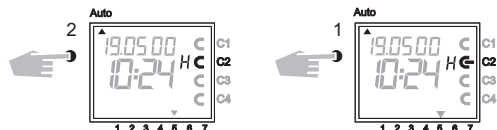
Each channel can be switched **ON** manually in the automatic program. In which case, the symbol **H** = **hand** appears in the display.

An override switching is cancelled again by the next switching command. The **H** display is turned off.

Select Channel: e.g. Button **1** = Channel C1, Button **2** = Channel C2 etc.

Select Status: Button **1** = Switch ON, Button **0** = Switch OFF

Example: Switch ON Channel **C2** manually, press button **2**, once (press **1**).

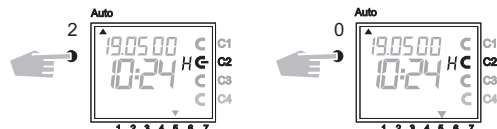


Each channel can be switched OFF manually in the automatic program. An override switching in the automatic program is corrected again by the next switching command. (The **H** symbol is turned off).

Select Channel: e.g. Button **1** = Channel C1, Button **2** = Channel C2 etc.

Select Status: Button **1** = Switch ON, Button **0** = Switch OFF

Example: Switch OFF Channel **C2** manually, Button **2**, press.



6.3 Random Program

General Comment

A random program causes the time switch to switch ON or OFF at random between one or more pairs of switchings (ON and OFF switching time).

Duration of the random ON and OFF switching time approx.

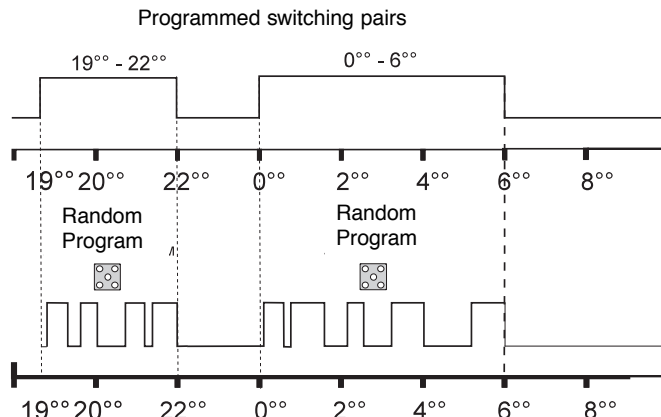
10 – 120 minutes.

The random program can be selected individually for each time channel.

Example:

Between 19.00 and 22.00 random ON (display:r)

Between 0.00 and 06.00 random ON (display:r)

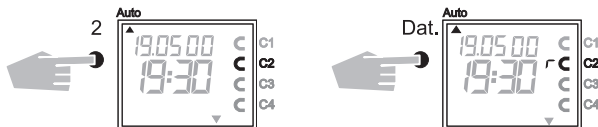


6.4 Random Program Start

A random program can be switched ON manually in the automatic program (Auto) at any time. It remains active until switched OFF (chapter 6.5).

Note: If the random program is active in a channel, the symbol **r** (random) appears beside the channel.

Example: Switch ON random program in Channel **C2**.

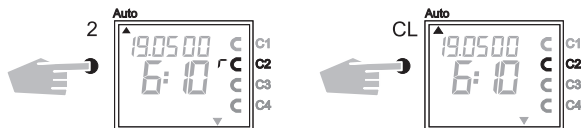


6.5 Stop Random Program / Override Switching

A random program override switching can be interrupted at any time. After cancellation of the random program override switching, the time switch carries out a program review. This causes the time switch to inspect the stored program and then take up the correct switching status.

Example: Stop random program Channel **C2**.

Note: The symbol **r** turns OFF.




6.6 Locking/ Unlocking the Keyboard

Effect:


The memory card allows you to prevent operation of the device by unauthorized persons.


In this case time switch query and programming are impossible without the memory card.

Locking the keyboard


1. Insert the memory card into the data interface.
2. Press key **8** for approx. 3 secs until the icon  is flashing.

Operating the time switch

If after a button is pressed and the Symbol  is blinking, the keyboard is locked.

1. Insert the memory card into the data interface.
2. You can select the desired program using the  key.
3. Now you can remove the memory card in order to continue programming.
When the time switch returns to auto mode, the keyboard is locked.

Canceling the keyboard lock

1. Insert the memory card into the data interface.
2. Press key **8** until the icon  appears.
3. Press key **8** for approx. 3 secs until the icon disappears.
4. Remove the memory card.

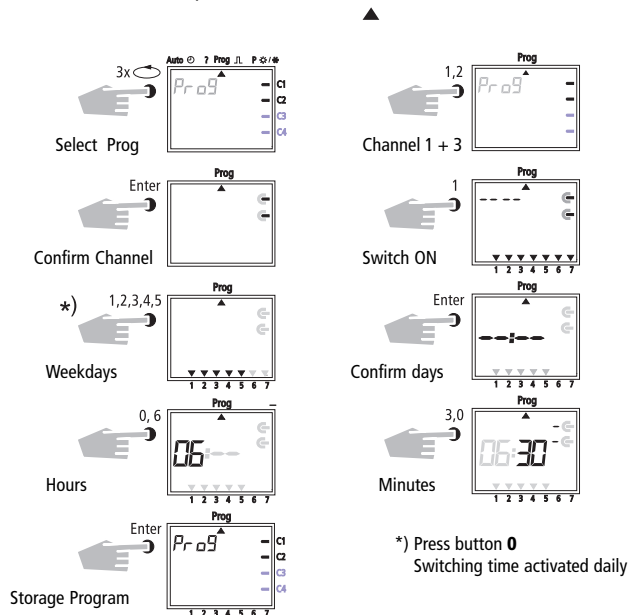
Now the time switch can be operated again without obstruction.

7.0 Programming

7.1 Weekly Program, set switch ON time

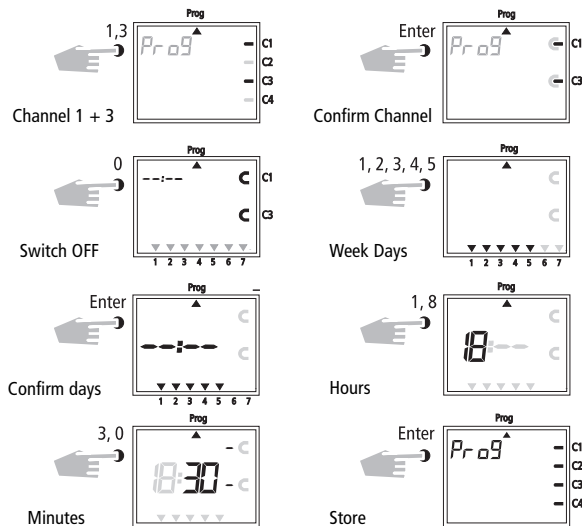
e.g.: Channels **C1** and **C3** are to switch on at 6.30 from Mon to Fri


Place cursor ▲ in pos. **Auto** ☉ ? **Prog** ⏏ P ⚙ / ⚙



Example 2: Weekly program – set switch **OFF** time

– Channels **C1** and **C3** are to switch OFF at 18.30 from Mon to Fri

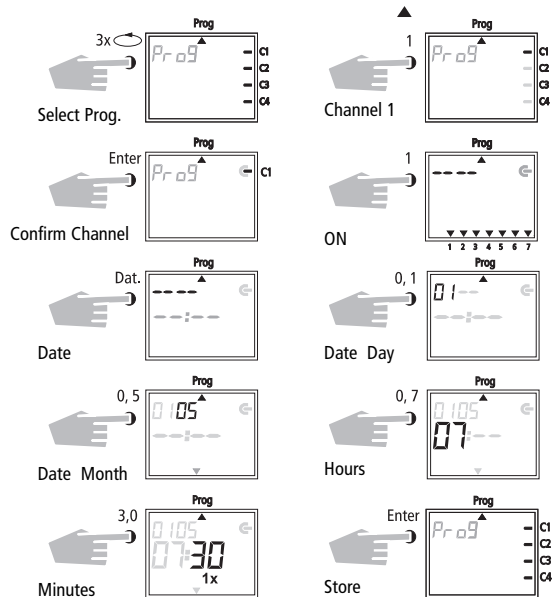


Additional programming as described, or back into the automatic program with button .

7.2 Programming Date Program

Example.: Channel **C1** is to switch ON yearly on the 1.5 at 7.30

Place cursor ▲ in pos. **Auto** ☉ ? **Prog** ⏏ P ☼ / ⚙

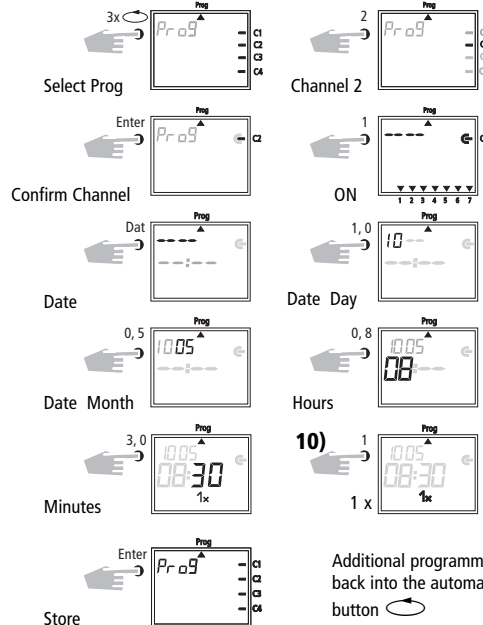


Additional programming as described or back into the automatic program with button ⏏.

7.3 Programming Single Switching Time

Example: Channel **C2**, 1 switch ON on the 10.5 at 8.30

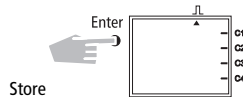
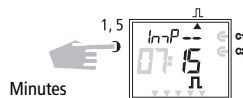
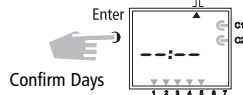
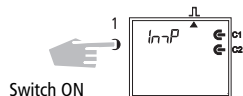
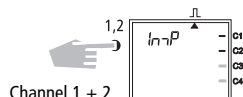
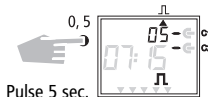
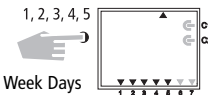
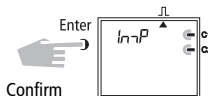
Note: Only date related switching times can be programmed with the function **1x** see illustration 10. Once the switching time is effected, it cancels itself automatically at mid-night.



Additional programming as described or back into the automatic program with button ⏏.

7.4 Programming Pulse Program

Example: Channels **C1** and **C2** pulse duration: 5 secs from Mon to Fri at 7.15.
Place cursor ▲ in pos. **Auto** ☹ ? **Prog** ▮ **P** ☼/☾



Note After a time adjustment, pulses are only effected, which are programmed at least one minute after the time adjustment.

8.0 Priority Program

With the time switches up to 9 different weekly programs can be performed in addition to the normal weekly program. A firm weekly program **P1 ... P9** can be requested at any fixed periods of time.

That is, the programming consists of:

1. Setting the weekly program (see Chapter 8.1)
2. Setting commencement and completion date (see Chapter 8.2)

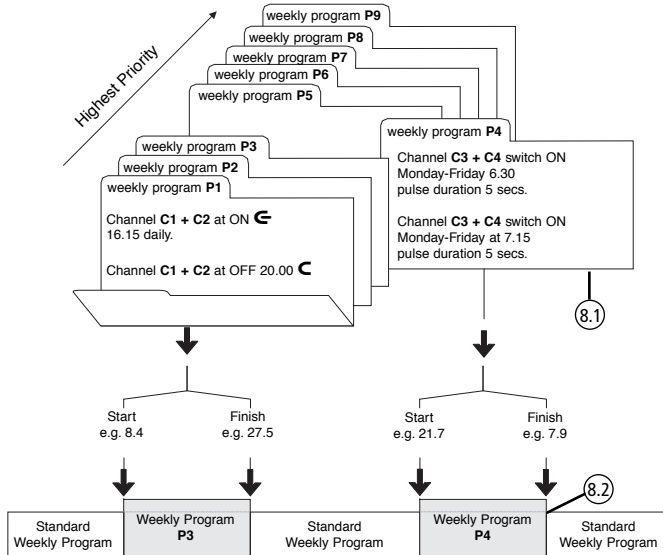
If the time period of several weekly programs cut across one another, the program with the highest index number prevails e.g. weekly program **P9** prevails over weekly program **P3**.

In order to maintain control, we recommend that the various weekly programs are noted in the table at the end of the user instructions.

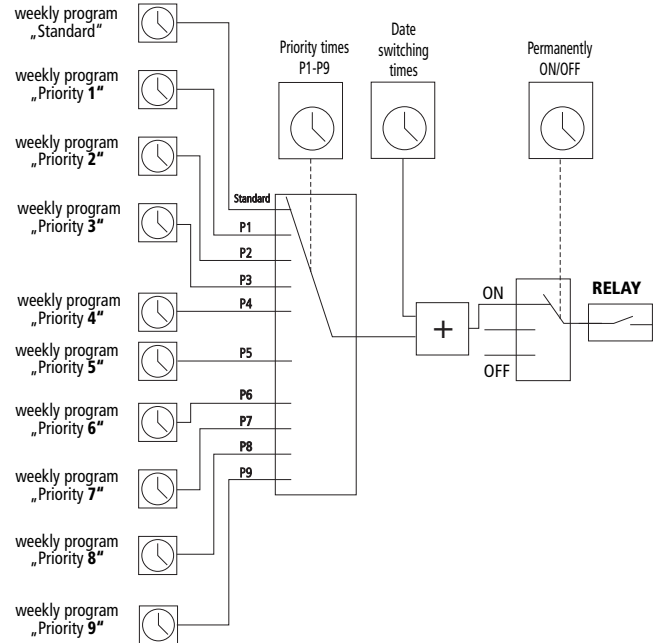
Switching times are executed in the following order:

- Permanent switching
- Time limited permanent switching. Chapter 8.3 (out priority over ON).
- Date switching times. Chapter 7.3 (out priority over ON).
- 1x switching times. Chapter 7.3.
- Weekly program with priority. Chapter 8.2/8.3 (P9 priority over P1).
- Weekly program. Chapter 7.1/7.2.
- etc.

Weekly Program Schedule with Priority

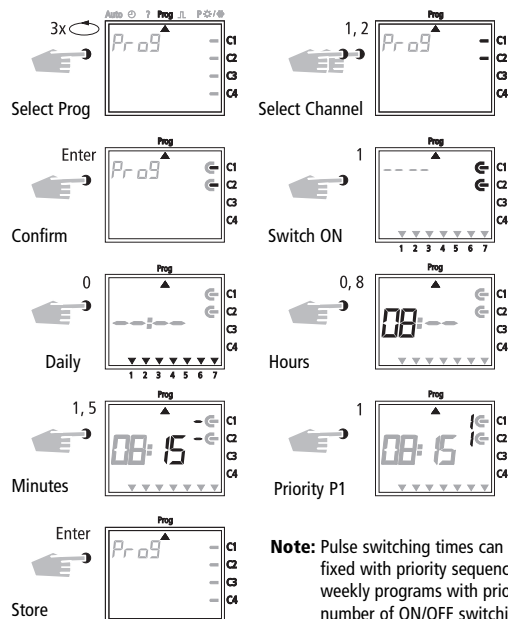


When changing to a new weekly program (e.g. on 8.4 at 0.00 hr), all channels in questions are switched as if the new weekly program has been valid for some time. This means the new weekly programme makes a review of the program.



8.1 Programming Weekly Program with Priority P1 .. P9

Example Channel **C1** and **C2** switch on daily at 8.15
Weekprogram get priority sequence **P1**.



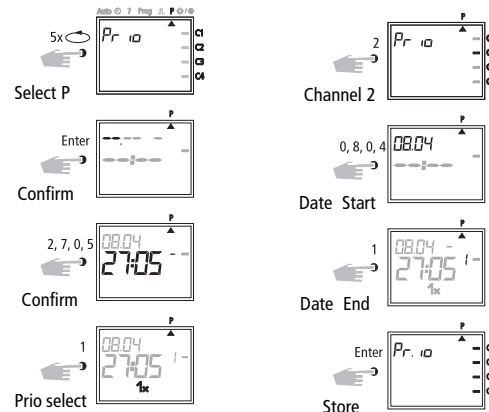
Note: Pulse switching times can also be fixed with priority sequence. For weekly programs with priority, any number of ON/OFF switching commands can be specified.


8.2 Setting Time Period for Weekly Program P1 .. P9

A. Recurring annually

The time period of a weekly program **P1 .. P9** is fixed by entering a commencement and finishing date. The weekly program begins at 0.⁰⁰ on the commencement date and ends at 24.⁰⁰ on the finishing date.

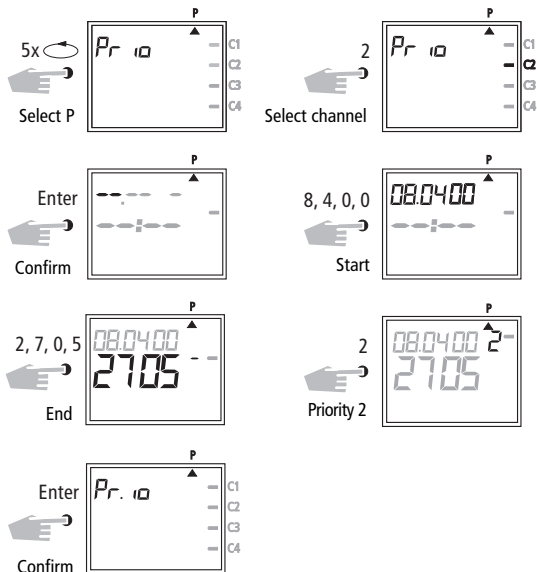
Example: As opposed to the normally active program on Channel **C2** from **8 April** until **27 May**, the individual priority program with index **P1** is to become effective. In the fixed time period with priority sequence **P1 .. P9**, the whole standard program (without priority sequence) is suppressed.



Additional programming as described or with button  back into the automatic program.

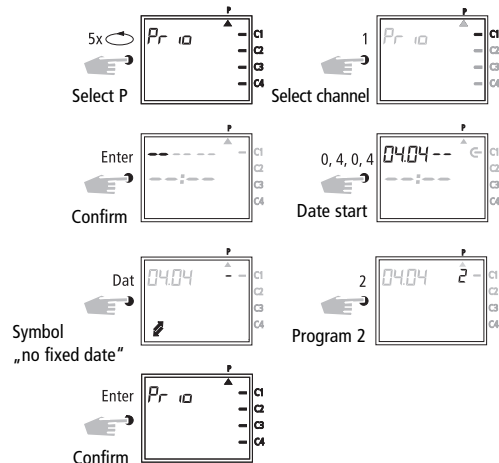
B. Weekly Program only in one Specified Year

Example: Only in year 2000 from 8th April to 27th May, e.g. the weekly program **P2** activated.



C. Stipulating Public Holidays without a Fixed Date

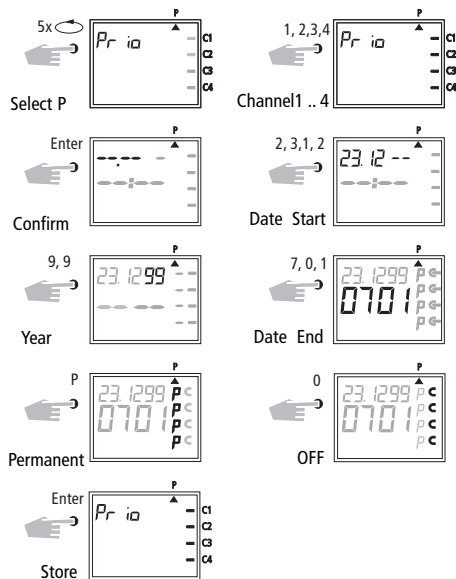
Example: Following this measure, a public holiday such as Easter (not a fixed date) will be activated automatically and will execute, e.g., program **P2**.



Note: Programming of public holidays without fixed dates only needs to be carried out once, e.g. following initial start-up. This applies to holidays connected with Easter such as Ascension, Whitsun, Corpus Christi, Ash Wednesday, Good Friday etc. Program the date of **all** of these holidays that do not have a fixed date **once** only for the **current** year.

8.3 Time Limited Permanent Switching ON or OFF

E.g.: All connected equipment is to remain switched OFF during the Christmas holidays between **23 December** and the **7 January**.



Additional programming as described or with button back into the auto-
matic program.

9.0 Program Interrogation

9.1 Whole Program Interrogation

Menu Selection cursor under ?

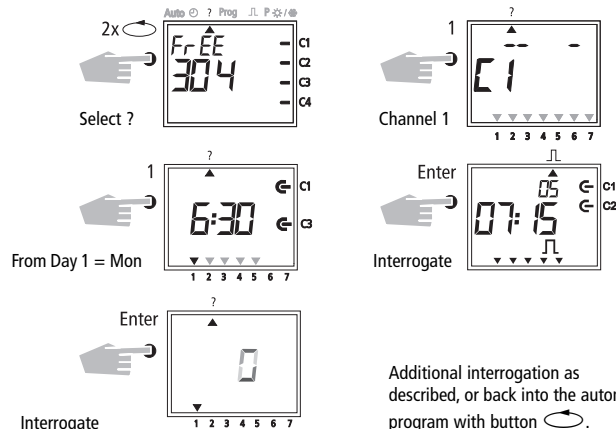
By pressing **ENTER** button (several times) interrogate whole program.

9.2 Interrogating of Designated Switching Times

1. Illustration: menu selection and display of the free memory locations e.g. **304**

2. Illustration: e.g. select channel **1** (press button **1**).

3. Illustration: begin interrogation e.g. from Mondays: button **0**, **1** press.
(**C3** is displayed likewise, as jointly programmed as a block).



9.3 Interrogation of Channel Related Date Program

Illustration 1: Menu selection and display of the free memory locations e.g. 304

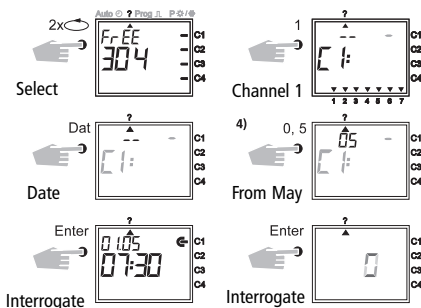
Illustration 2: Select Channel e.g. C1, press button 1

Illustration 3: Select date program, press button Dat

Illustration 4: Begin interrogation e.g. from May Button 0, press 5 (interrogation from February Button 0, press 2 etc.)

Illustration 5: Search for the desired switching time press Enter Button e.g. on 1.5 Channel C1 ist urned on at 7.30

Illustration 6: Example, memory searches for additional switching times



With Button back into the automatic program (Auto).

9.4 Complete Interrogation of Date Program

The complete interrogation of the date program is effected as described in 9.3. The entry step in illustration 4 (button 0,5) must be omitted in this case. All stored date related switching times will be shown one after the other from January (01).

9.5 Interrogating Weekly Program with Priority

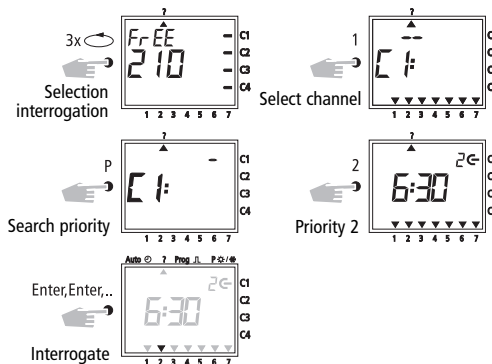
Fig. 1: Display of available memory space 210

Fig. 2: Select: Channel C1

Fig. 3: Only have priorities displayed

Fig. 4: Priority selection, have everything displayed with priority 2

Fig. 5: Press Enter to have further programs with priority 2 displayed



Note: If, while in interrogation mode, a date, the year and the symbol are displayed, then this indicates a public holiday without a fixed date.

To cancel: Press button to return to the automatic program.

10.0 Changing a Stored Program

Any program already stored, whether weekly or yearly can be changed depending on individual requirements.

Condition: Cursor must be in the interrogation menu. **Auto** **?** **Prog** **P**

Example:

Illustration 1: example: free memory locatins **304**

Illustration 2: Button **1** of selected Channel **C1**

Illustration 3: By repeatedly pressing the **Enter** Button, call up the switching time to be changed

Illustration 4: Button **P** = adjustment

Illustration 5: e.g. Channels C2, C4 ON

– **change channel sequence:** with **Button 1, 2, 3, 4**

– afterwards store with **Enter** Button

– retain channel sequence: progress with **Enter** Button

Illustration 6: Store channel selection

Illustration 7: Switching status e.g. switch ON

– **change switching status:** with Button **0,1**

– **retain switching status:** progress with **Enter** Button

Illustration 8: Programmed weekdays

– switching times are effected on the day, Mo to Fr (1 – 5)

– **changing weekdays: e.g.: not Wed, Sat, Sun**
press Button **3, 6, 7**

– **retain weekdays:** progress with **Enter** Button

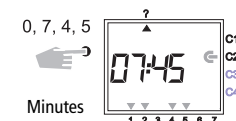
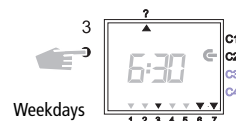
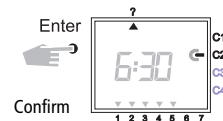
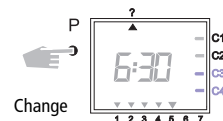
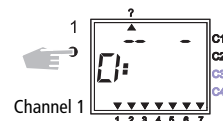
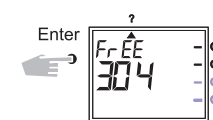
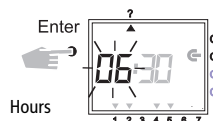
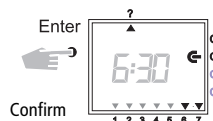
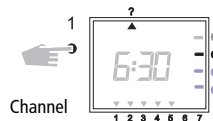
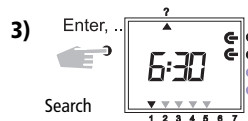
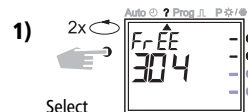
Illustration 9: Store change

Illustration 10: **Change switching time:** e.g. 7.45 press Button 7, 4, 5

– afterwards store with **Enter** Button

– **retain switch time:** progress with **Enter** Button

Illustration 11: Search for additional switching times, press **Enter** Button



Additional changes as described, or back into the automatic program (Auto) with Button ..

11.0 Cancellation

11.1 Cancellation of Individual Switching Times

Illustration 1: Menu selection **?** and display of free memory locations e.g. **304**.

Illustration 2: Select channel, e.g. C1, press Button **1**.

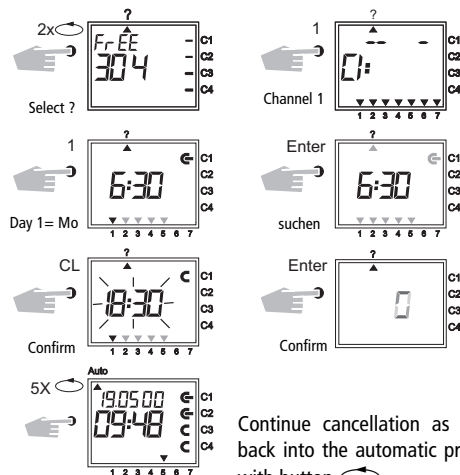
Illustration 3: Commence search from day 1 = Monday, press Button **1**.


Illustration 4: Search for switch times: press **Enter** Button.

Illustration 5: Cancel: press **CL** Button and then **Enter** Button.

Discontinue cancel procedure: press **CL** instead of **Enter** Button.

Illustration 6: **Enter** Button: memory searches for additional switching times.



Continue cancellation as described, or back into the automatic program (Auto) with button .

11.2 Cancellation of Date Program

Illustration 1: Menu selection **?** and display of free memory locations e.g. **304**.

Illustration 2: Select channel e.g. C1, press Button **1**.

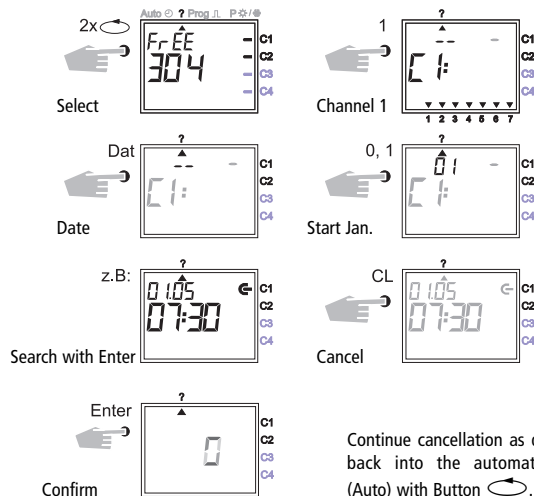
Illustration 3: Select date switching times, press **Dat** Button.


Illustration 4: Begin interrogation from January: press Button **0, 1** (February **0, 2** etc.)

Illustration 5: Search for the switching time to be cancelled, press **Enter** Button.

Illustration 6: Cancellation of the switching time: press **CL** Button and afterwards **Enter**.

Illustration 7: **Enter** Button: memory searches for additional switching times.



Continue cancellation as described, or back into the automatic program (Auto) with Button .

11.3 Cancellation of the Whole Priority Program

Illustration 1: Menu selection **?** and display of free memory locations e.g. **304**

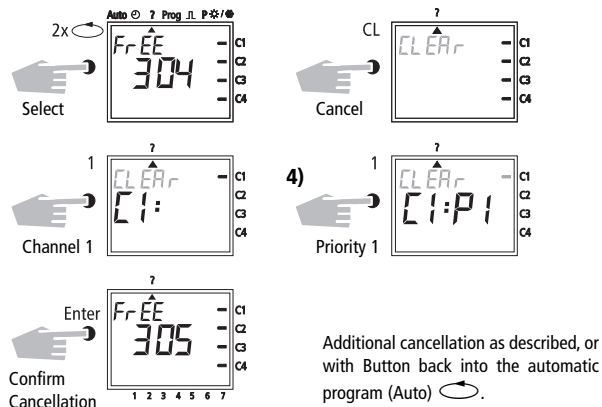
Illustration 2: Initiate the cancellation procedure, press **CL** Button

Illustration 3: Select channel e.g. **C1**, press Button **1**

Illustration 4: Select the priority program for cancellation e.g. **P1**, press Button **1**

Discontinue cancellation procedure, press **CL** Button again

Illustration 5: Confirm cancellation procedure, press **Enter** Button



11.4 Complete Program Cancellation of One Channel

The program of one channel can be cancelled completely. The cancellation is effected as described in Chapter 11.3. The entry step in Illustration 4 (Button **1**) must be omitted in this case.

11.5 Cancel Everything

Illustration 1: Menu selection **?** and display of free memory locations e.g. **304**

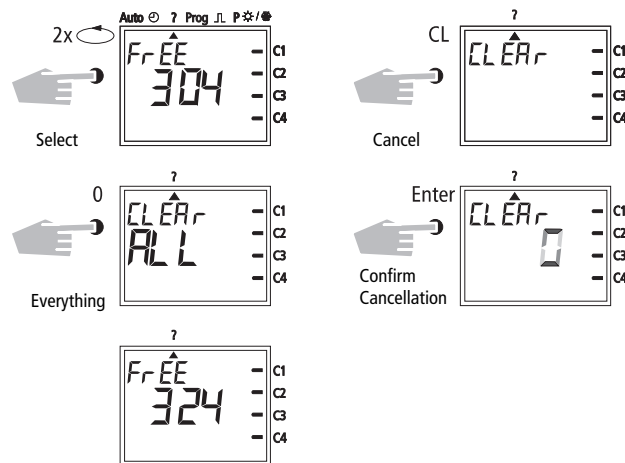
Illustration 2: Cancel program, press Button **CL**

Illustration 3: Cancel everything, press Button **0**

Discontinue cancellation, press **CL** Button again

Illustration 4: Confirm cancellation, press **Enter** Button

Illustration 5: Display **324** memory locations, all switching times are cancelled

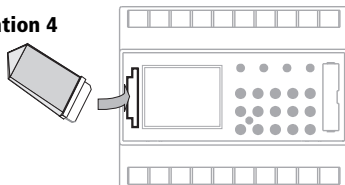


With Button back into the automatic program (Auto).

12.0 Data Exchange / Security

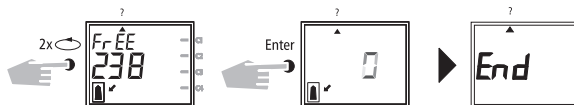
Switching times of time switch can be stored externally with the memory card. The data can be filed or transferred from time switch to time switch.

Illustration 4



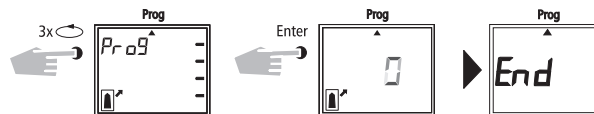
12.1 Entering Data from Time Switch onto Memory Card

Push the memory card into the data interface (Illus. 4). Select menu **?**. Enter data on the memory card: press **Enter** button. The data is transferred when the **End** symbol is displayed in the LCD. Remove memory card. Back into the **Auto** menu with **Enter** button.



12.2 Reading Data from Memory Card into Time Switch

Push the memory card into the data interface (illus. 4). Select menu **Prog**. Read data in, press **Enter** button. The data is transferred, when the **End** symbol is displayed in the LCD. Remove memory card. Back into the **Auto** menu with **Enter** button.eicherten Schaltzeiten der Schaltuhr gelöscht (siehe Tabelle in Kapitel 16).



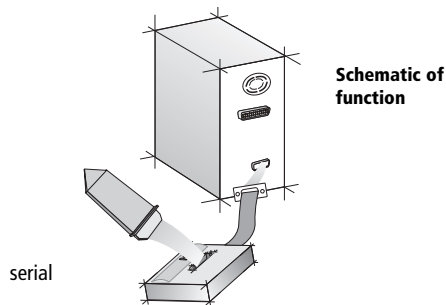
13.0 Preview Programming with Software

As an option, the possibility exists for preparing a program on the computer with the software program. The prepared program can be written onto the memory card and also be printed out. The memory card can now be as secure data or for reading into another time switch.

Condition:

- PC from 486 free hard disk storage capacity approx. 1 MB
- from WINDOWS 95 to WIN 98 / 2000 / WIN NT

Order No. contains:
Software program + system adapter + memory card.



14.0 Tips and Additional Possibilities

1. Priority Program with Random Switching

Possibility for starting a random program automatically during public or annual holiday times.

1. Program weekly program with the desired ON and OFF switching times and priority sequence **P1 .. P9** (Chapter 8.1)
2. Specify the time period for the weekly program (Chapter 8.2).
3. Activate random program once manually (Chapter 6.7).

2. Special Program for holidays

Procedurally during holidays to switch ON and OFF connected units at different times:

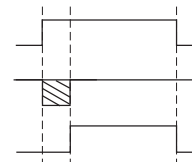
1. Program your desired holiday program. The ON and OFF switching times must occur daily. A priority sequence **P1..P9** must be assigned to the switching times (Chapter 8.1).
2. Specify the time period for the weekly program
e.g. only for the 1st May → begin 01.05 finish 01.05 (Chapter 8.2).

3. Pulse Program for Time delayed Switch-ONs

A switch-ON time e.g. at 7.0 and 10 secs can be achieved by:

1. programming a switch-ON time e.g. 7⁰⁰ ON (☞) (Chapter 7.1)
2. Additional pulse program (Chapter 7.4) with same switch-ON time.

1. Switch-ON time e.g. 7⁰⁰ ☞
2. Additionally at 7⁰⁰ pulse OFF (☛) for the duration of 10 secs
3. Effective at 7⁰⁰ 10 secs switch ON



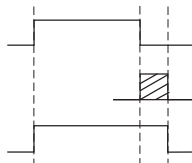
Note: After a time adjustment, only pulses, which are programmed at least 1 minute after the time adjustment, are carried out.

4. Pulse Program for Time Delayed Switch-OFF

A switch-OFF time e.g. at 8.0 and 10 secs. can be achieved by:

1. Programming a switch-OFF time eg.g. 8⁰⁰ (Chapter 7.1)
2. Additional programming of a simultaneous pulse switching time of 10 secs. duration.

1. Switch-OFF time e.g. 8⁰⁰ OFF **C**
2. Additional pulse ON (**⏻**) at 8⁰⁰ for 10 secs duration
3. Effective at 8⁰⁰ 10 secs. switch OFF.



Note: After time adjustment, only pulses, which are programmed at least 1 minute after the time adjustment are carried out.

5. Channel Block Formation

If not all memory locations are to be used, we recommend you dispense with channel block formation when programming switching times. This provides advantages when changing or cancelling individual switching commands.

15.0 Glossary

What does automatic operation (Auto) mean?

The cursor is below **Auto**. Current time is displayed.

The switching sequence of the time switch is determined by the stored switching times.

(Note: permanent switching has priority see Chapters 6.2 and 6.3).

What is automatic return?

When in the interrogation or programming mode, if no button is used for a long time, the display reverts automatically, after approx. 40 secs. to automatic operation. The product then takes up the switching status specified by the program.

Program recan?

This results in the time switch checking the stored program and implementing the correct switching condition.

What does entry correction mean?

In the event of wrong entry during programming, by pressing the **CL** button, the entry can be cancelled and immediately corrected.

What does weekday block formation mean?

Simultaneous programming at one switching time e.g. 6⁰⁰ ON on several days of the week e.g. Monday, Tuesday and Friday.

Only one memory location is used.

What does channel block formation mean?

Simultaneous programmed switching times, which are effective in several channels, take up only **one** memory location.

Advantage: Faster programming of the switching times.

What does memory card mean?

Mobile data carrier can be used for:

- security of the programmed time program
- duplication of the programmed time program
- faster programming of additional time switches with the same program

Option only with software:

- programming on the PC, store on memory card
- read program into time switch(es)
- program print out possible

What does RESET mean?

By pressing the RESET button, a defined new start for the time switch is effected. The current time and date are cancelled. The stored switching times are maintained permanently.

What does EEPROM mean?

An EEPROM is an electronic memory, which can store memorised data even without current (without battery back up) for a period of approx. 40 years.

What is an LCD?

An LCD display is a liquid crystal display, with which current time and stored data (switching times) can be shown.

16.0 Table of Errors

In order to increase the reliability of operation, several internal tests are run by the time switch. If any error appears during these tests, the LCD will display the following error numbers.

Error no. 4, 5, 6, 7:

Error in the transmittance of data memorized in the memory card.

1. Transfer program once again onto program card.
2. Repeat transaction.
3. No success.

Error no. 3:

Program card has been withdrawn prior to end of data transfer.

Repeat transaction.

Error no. 1, 2, 8:

Program memory defect.

[illegible]

[illegible]

Schneider Electric Industries SAS

If you have technical questions, please contact the Customer Care Center in your country.

www.schneider-electric.com

This product must be installed, connected and used in compliance with prevailing standards and/or installation regulations. As standards, specifications and designs develop from time to time, always ask for confirmation of the information given in this publication.

Overview

The following application programs are available for the room temperature controller:

Application	Function
7713 scene with switching, value and priority	<p>On each of the 4 channels you can choose between the following message types:</p> <ul style="list-style-type: none"> • switching message (1 Bit) • priority message (2 Bit) • dimming or value message (8 Bit) • cyclic sending selectable <p>You can implement a scene with up to 4 different message types with the 4th channel. At one switching time point, different types of actuators or actuator groups (switching/dimming/shutter actuators) can be triggered at the same time.</p>
7712 switching, value, transmit time and date	<p>On each of the 4 channels you can choose between the following message types:</p> <ul style="list-style-type: none"> • switching message (1 Bit) • priority message (2 Bit) • dimming or value message (8 Bit) • cyclic sending selectable • date and time can be sent each minute, hour, day or on demand (via object time inquiry)
7711 switching, value, temperature, transmit time and date	<p>On each of the 4 channels you can choose between the following message types:</p> <ul style="list-style-type: none"> • switching message (1 Bit) • priority message (2 Bit) • dimming or value message (8 Bit) • temperature message (16 Bit) • any message in the EIS 5 form (16 Bit) • cyclic sending selectable • time switch can be set synchronised via bus by receiving the time and date message

Selection in the product database

Manufacturer:	Schneider Electric
Product family:	time switches
Product type:	4-channel year time switch
Product name:	Year time switch REG-K/4/324 (DCF77)

7713: Application program "scene with switching, value, priority"

Function Characteristics

By choice, a switching, priority or value message can be sent on each of the channels 1 to 3. Additionally a scene with up to 4 types of message can be implemented on the 4th channel. Thus different types can be triggered by actuators or groups of actuators at one switching time (switching / dimming / shutter actuators). Example: The scene "end of workday" effects at the same time following instructions with different group addresses:

- light off
- lower heating
- close shutters
- alarm system armed

Additionally the possibility exists for suppressing the time switch program of the clock via the bus by control of a blocking object. Whether the blocking object has an influence on the transmission behaviour of the individual channel objects can be adjusted by parameters. If this is the case, uniquely a message can be released corresponding to the switching off/on instruction of the clock or no message may be released when setting the blocking object for each channel object. Subsequently, no message is transmitted by the corresponding channel object. If the blocking object is again reset, the current status of the channel object is transmitted directly on the bus.



Attention!

Communication between bus coupler and time switch (and thus also processing the application program) is only effected when the clock is in the automatic mode. Possible actions, as long as the clock is not in the automatic mode, are retrieved when re-creating the automatic mode.

Communication objects

Object Name	Function	Type	Behaviour
channel <No> – switching no = 1,2,3 channel 4 scenes-obj. 1 ..4	transmitting of a switching message, when the channel switches	1 Bit	transmit
channel <No> – value, no = 1,2,3 channel 4 scenes-obj. 1 ..4	transmitting of a value message, when the channel switches	8 Bit	transmit
channel <No> – priority no = 1,2,3 channel 4 scenes-obj. 1 ..4	transmitting of a priority message, when the channel switches	2 Bit	transmit
block	receiving a message blocking	1 Bit	receive

number of communication objects	8
max. amount of group addresses:	1 0
max. amount of associations	1 0

Parameter

Parameter on page „generally“

Description	Possible adjustments	Meaning
time for all objects, which are sending in cycles	appr. 2,5 min. appr. 3 min. appr. 5 min. appr. 10 min. appr. 15 min. appr. 20 min. appr. 30 min. appr. 45 min. appr. 60 min.	Adjustment of the cycle time with which the message is transmitted repeatedly on the bus. This parameter applies to all objects, where the transmission behaviour "cyclic transmitting" is adjusted.
Is channel 4 to control a scene?	no yes	Adjustment if a scene function is to be implemented on channel 4.
How many objects is this scene to have?	2 objects 3 objects 4 objects	The parameter appears when a scene is to be controlled on channel 4. Adjustment, how many scene objects for channel 4 are to be produced. If channel 4 switches, messages are transmitted at the same time on the scene objects.

Parameter on the pages channel 1,2,3 and channel 4 – scenes-obj. 1,2,3 or 4“

Description	Possible adjustments	Meaning
object type	switching value priority	Adjustment whether a switching (1 bit), value (8 bits) or priority message (2 bits) has to be transmitted over the channel.
switching behaviour	clock on -> on / clock off -> off clock on-> off / clock off -> on	Parameter appears, if type of object "switching" is adjusted. Adjustment whether "0" - or "1"-message is transmitted, if the clock channel switches accordingly.
value when turning off the clock	0 ... 255	Parameter appears, if type of object "value" is adjusted. Adjustment, which value is transmitted, if the clock channel switches off.

Description	Possible adjustments	Meaning
value when turning on the clock	0 ... 255	Parameter appears, if type of object "value" is adjusted. Adjustment which value is transmitted, if the clock channel switches on.
priority value when turning off the clock	priority inactive priority off priority on	Parameter appears, if type of object "priority" is adjusted. Adjustment which priority value is transmitted, if the clock channel switches off.
priority value when turning on the clock	priority inactive priority off priority on	Parameter appears, if type of object "priority" is adjusted. Adjustment which priority value is transmitted, if the clock channel switches on.
sending behaviour	only when switching the clock send cyclically	Adjustment whether the message is transmitted only when switching the clock channel or cyclically on the bus

7712: Application program "switching, value, send time and date"

Operational Characteristics

On each of the 4 channels you can choose between the following message types:

- switching message (1 Bit)
- priority message (2 Bit)
- dimming or value message (8 Bit)

For each channel cyclic transmitting can be selected, this is controlled by a common timer. Date and time-of-day can be transmitted each minute, each hour, each day or only on request. When interrogating a time via time inquiry the object (1-Bit), the status of the inquiry message is insignificant. Date and time-of-day are always transmitted together.



Attention:

Communication between bus coupler and time switch (and thus also processing the application program) takes place only, if the time switch itself is in the automatic mode (screen-display **auto**).

Communication Objects

object name	function	type	behaviour
channel <no> – switching no = 1,2,3 or 4	transmitting a switching message when the channel switches	1 Bit	send
channel <no> – value, no = 1,2,3 or 4	transmitting a value message when the channel switches	8 Bit	send
channel <no> – priority no = 1,2,3 or 4	transmitting a priority message when the channel switches	2 Bit	send
send time	transmitting a message "time" (EIS 3) with the components week-day and time corresponding to the parameter adjustment (each minute, each hour, each day or on demand)	3 Byte	send
send date	transmitting a message "date" (EIS 4) with the components week-day and time corresponding to the parameter adjustment (each minute, each hour, each day or on demand)	3 Byte	send
time inquiry	receiving a message „time inquiry“; after reception, time and date are sent on the bus;	1 Bit	receive

Max. amount of communication objects:	7
Max. amount of group addresses:	8
Max. amount of associations:	8

Parameter

Parameter on the pages „channel 1, 2, 3 or 4“

Description	Possible adjustments	Meaning
object type	switching value priority	Adjustment whether a switching (1 bit), value (8 bits) or priority message (2 bits) has to be transmitted over the channel.
switching behaviour	clock on -> on / clock off -> off clock on-> off / clock off -> on	Parameter appears, if type of object "switching" is adjusted. Adjustment whether a "0" - or "1"-message is transmitted, if the clock channel switches accordingly.
value when turning off the clock	0 ... 255	Parameter appears, if type of object "value" is adjusted. Adjustment, which value is transmitted, if the clock channel switches off.
value when turning on the clock	0 ... 255	Parameter appears, if type of object "value" is adjusted. Adjustment which value is transmitted, if the clock channel switches on.
priority value when turning off the clock	priority inactive priority off priority on	Parameter appears, if type of object "priority" is adjusted. Adjustment which priority value is transmitted, if the clock channel switches off.
priority value when turning on the clock	priority inactive priority off priority on	Parameter appears, if type of object "priority" is adjusted. Adjustment which priority value is transmitted, if the clock channel switches on.
sending behaviour	only when switching the clock send cyclically	Adjustment whether the message is transmitted only when switching the clock channel or cyclically on the bus.

Parameter on the page „cycle time for channel 1 – 4“

Description	Possible adjustments	Meaning
time for sending cyclically	ca. 3 min ca. 5 min ca. 10 min ca. 15 min ca. 20 min ca. 30 min ca. 45 min ca. 60 min	Adjustment of the cycle time with which the message is transmitted repeatedly on the bus. This parameter applies to all channels, where the transmission behaviour "cyclic transmitting" is adjusted.

Parameter on page "time/date"

Description	Possible adjustments	Meaning
sending of date and time	only on demand each minute each hour each day	Adjustment of the sending condition, when the message "date" and "time" is sent on the bus

7711: Application "switching, value, temperature, receive time and date"

Operational Characteristics

This application offers the possibility to send on each of the 4 channels the following messages:

- switching message (1-Bit)
- priority message (2-Bit)
- dimming or value message (8-Bit)
- temperature message (16-Bit)
- any message in the EIS 5 form (16-Bit)

Furthermore the time switch can receive time and date messages for temporal synchronisation. These time and date messages can for example be sent on the bus by a Year time switch with a DCF 77 reception and the application "switching, value, time and date transmit".

The adjustment of any message in the EIS 5 form requires appropriate mathematical knowledge.

Communication objects

object name	function	type	behaviour
channel <no> – switching no = 1,2,3, 4	transmitting a switching message when the channel switches	1 Bit	send
channel <no> – value, no = 1,2,3, 4	transmitting a value message when the channel switches	8 Bit	send
channel <no> – priority no = 1,2,3, 4	transmitting a priority message when the channel switches	2 Bit	send
channel <no> – temperature, no = 1,2,3, 4	transmitting any 16-Bit number value (EIS 5), when the channel switches	2 Bytes	send
channel <no> – amount, no = 1,2,3, 4	transmitting a temperature message when the channel switches	2 Bytes	send
receive time	receiving a time message (EIS 3) with the components week-day and time	3 Byte	send
receive date	receiving the date message (EIS 4) with the components week-day, month and year	3 Byte	send

Max. amount of communication objects:	6
Max. amount of group addresses:	8
Max. amount of associations:	8

Parameter

Parameter on the pages „channel 1, 2, 3 or 4“

Description	Possible adjustments	Meaning
Function of channel 1	switching value priority temperature 16-Bit-value = (S*0.01*(M1+M2)* 2 ^{exp.})	Adjustment if a switching, (1 Bit), value (8 Bit) or priority message (2 Bit) is to be sent over the channel.
switching behaviour when turning off the clock	to send off-message to send on-message	Parameter appears, if type of object "switching" is adjusted. Adjustment whether a "1" – or "0"-message is transmitted, when the clock channel turns off.
switching behaviour when turning on the clock	to send on-message to send off-message	Parameter appears, if type of object "switching" is adjusted. Adjustment whether a "1" – or "0"-message is transmitted, when the clock channel turns on.
value when turning off the clock	0 ... 255	Parameter appears, if type of object "value" is adjusted. Adjustment, which value is transmitted, if the clock channel switches off.
value when turning on the clock	0 ... 255	Parameter appears, if type of object "value" is adjusted. Adjustment which value is transmitted, if the clock channel switches on
priority value when turning off the clock	priority inactive priority off priority on	Parameter appears, if type of object "priority" is adjusted. Adjustment which priority value is transmitted, if the clock channel switches off.
priority value when turning on the clock	priority inactive priority off priority on	Parameter appears, if type of object "priority" is adjusted. Adjustment which priority value is transmitted, if the clock channel switches on.
temperature value when switching off the clock	5 °C ... 15 °C ... 30 °C	Parameter appears, if type of object "temperature" is adjusted. Adjustment which temperature value will be sent, when the clock channel turns off. Expert info: The temperature value is sent in the EIS 5 – form with fixed

Description	Possible adjustments	Meaning
		specified exponents 3;
temperature value when switching on the clock	5 °C ... 21 °C ... 30 °C	Parameter appears, if type of object "temperature" is adjusted. Adjustment which temperature value will be sent, when the clock channel turns on.
when switching off		Parameter appears, if type of object "16-Bit-value" is adjusted. Adjustment which 16-Bit value will be sent, when the clock channel turns off.
sign (S)	+1 -1	The number value will be sent in the EIS 5-form and is calculated according to the following formula: <i>16-Bit-Wert = (S*0.01*(M1+M2)* 2^{exp.})</i>
mantissa (M1)	0 256 512 768 1024 1280 1536 1792	Example: S = +1 M1 = 0 M2 = 255 exp = 0 16-Bit-value = (+1*0.01*(0+255)* 2 ^{0.}) 16-Bit-value = 2,55
mantissa (M2)	0 ... 255	
exponent (exp)	0 ... 15	
when switching on		Parameter appears, if type of object "16-Bit-value" is adjusted. Adjustment which 16-Bit value will be sent, when the clock channel turns on.
signs (S)	+1 -1	The number value will be sent in the EIS 5-form and is calculated according to the following formula: <i>16-Bit-Wert = (S*0.01*(M1+M2)* 2^{exp.})</i>
mantissa (M1)	0 256 512 768 1024 1280 1536 1792	Example: S = -1 M1 = 256 M2 = 88 exp = 3 16-Bit-value = (-1*0.01*(256+88)* 2 ^{3.}) 16-Bit-value = -6880
mantissa (M2)	0 ... 255	
exponent (exp)	0 ... 15	
sending behaviour	only when switching the clock send cyclically	Adjustment whether the message is transmitted only when switching the clock channel or cyclically on the bus.

Parameter on the page „cycle time for channel 1 – 4“

Description	Possible adjustment	Meaning
cycle time for channel 1-4	ca. 3 min ca. 5 min ca. 10 min ca. 15 min ca. 20 min ca. 30 min ca. 45 min ca. 60 min	Adjustment of the cycle time with which the message is sent repeatedly on the bus. This parameter is applied for all channels where the sending behaviour is adjusted "cyclic sending".

Additional Expert Information

HVAC Functions (Heating, Ventilation, Air Conditioning)

The Year time switch is also in the position to control an individual room controller time-dependent through HVAC telegrams. For this purpose, HVAC operation modes such as auto, comfort, standby, Economy mode, frost protection and heat protection can be sent to a room thermostat. HVAC operation modes can be generated by using the object type "value" with following settings:

Operation mode	Value
Auto	0
Comfort	1
Standby	2
Night	3
Frost protection	4

Communication of the Year time switch with bus

The transfer of data between Year time switch and the KNX bus coupler takes place only if the clock is in the automatic mode. Reason: In all other modes, data which are to be transferred, can be modified and thus not all current data could get on the bus. If a switching command takes place when the clock is not in the automatic mode, it is retrieved upon return to the automatic mode.

Bus synchronisation

As already described, the time switch can receive (with the application "switching, value, temperature, time and date reception") time and date messages (ICE 3, 4) for temporal synchronisation.

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

- Two time windows are available daily between 1:58:44h and 2:13:00h as well as between 2:58:44h and 3:13:00h 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 it has to be taken into consideration that in case deviation of a weekday by +/- 1 day the date is also in the time message with regard to the weekday set on the clock. Time messages with a deviation of more than one weekday are not accepted. If no weekday is available in the time message, this is however accepted. The use of time messages without specification of the weekday is not recommended, as problems can occur with a daily transfer.
- If the clock is synchronized additionally by a DCF signal, then a synchronization is blocked via the bus.



Recommendation!


If an absolute synchronisation between certain clocks is required in the KNX system, a synchronization should be made by the DCF signal. During this procedure in particular the transmission times of the bus are omitted (e.g. via several couplers). Each Year time switch KNX therefore possesses an appropriate DCF entrance.

Obelisk 2.1

Manual



Intendend Use

With this software you can write switchng programs on a PC only for devices for  with the designation types

 : **Year time switch REG-K/4/324**
Year time switch REG-K/4/324 DCF77

Serial number for Demo: SMG-DEMO

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1.0 INSTALLATION

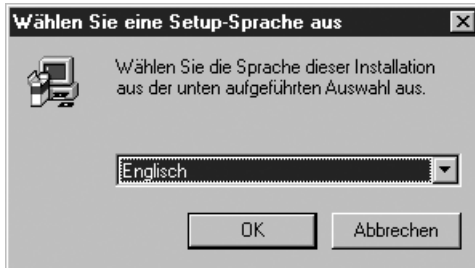
1.1 Software and Accessories

The Software package consists of:

- a CD (Obelisk)
- a memory card
- a interface
- a user's guide for the software

1.2 Installation for Windows 95/98/NT/2000/XP

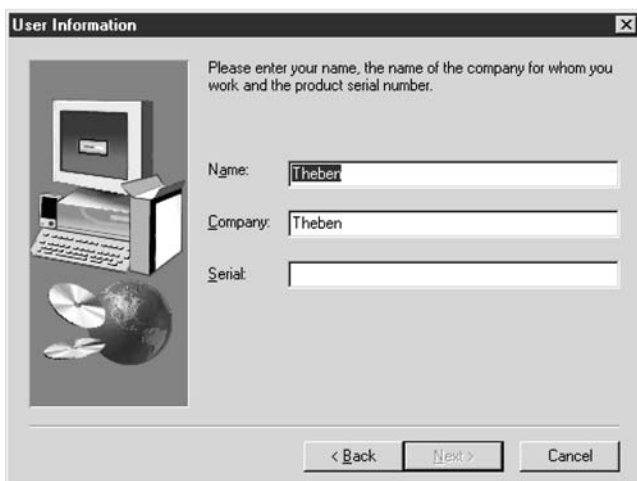
1. Click **Start**
2. Click **Run**
3. Enter **d:\setup.exe** (or your drive designation).
4. Click **OK**.



Select the language for Setup and then click **OK**.

Follow the instructions for the next installation steps.

After several installation steps the following dialogue appears:

A screenshot of a 'User Information' dialog box. The title bar says 'User Information' with a close button. On the left is a graphic of a computer monitor, keyboard, and CD-ROM. The main text says: 'Please enter your name, the name of the company for whom you work and the product serial number.' There are three input fields: 'Name:' with 'Theben' entered, 'Company:' with 'Theben' entered, and 'Serial:' which is empty. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

Enter the name, company and serial number of the installation CD.



Click **Next**.



Select the setup type and then click **Next**.

Follow the instructions to complete the installation.

Intended Use

With this software you can write switching programs on a PC. The software allows you:

- to write switching programs
- to program switching programs into a memory card
- to read in switching programs from the memory card
- to print out switching programs in tabular form
- to copy parts from an existing switching program and paste them into a new or already existing switching program
- to determine a new summer/ winter time changeover for your clock
- to filter switching programs in accordance with specific search criteria and to display or print out filtered switching programs
- to produce astronomical switching times (for the astronomical time switch only)

1.3 Installation of the Interface

The Interface - what is its purpose?

- The switching times produced on the PC can be read out by means of the interface onto a memory card.
- With the memory card program any other time switch can then be programmed within a few seconds.
- Switching times programmed on a time switch can be read out onto a memory card and then via an interface be read into the software.

Installation via the serial port:



Plug the interface for the serial port with the designation PC into the serial port of your PC.

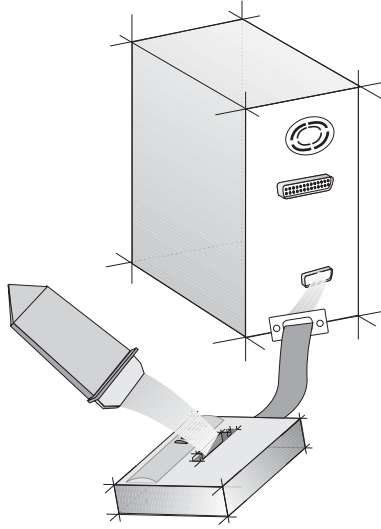
From the menu **Settings "Device Properties"** select the drop-down menu **Access to Obelisk**. There, set the serial port: COM 1, COM 2, COM 3 or COM 4.

Ensure that the port is activated in your system settings.

For the 16-channel timer, you need the **Obelisk V2.0** interface and the **Obelisk 64k memorx card**.

Under no circumstances are you allowed to print out documents on the printer while switching times derived from the software program are being interchanged between the PC and the memory card!

The length of the printer cable should not exceed 2.5 m.



2.0 START MASK

After starting the software or upon selection of the function **New** in the menu **File** the start mask appears.

On the start mask you can:

- set the language version
- select the device type for which you wish to write a program
- start a demo of the program, if you have installed the standard version

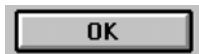
Click **OK** when you have selected the language version and clock type or want to adopt these from your last session.

2.1 Program Start

To start the Software



Move the mouse to the



symbol.



to start the program click the icon.

2.2 Setting the language version

The software always includes the language versions:

German
French
English

By clicking the globe, you can select a further language which is filed in Speech.txt.
If your language is not available, please contact us via our hotline.

Selecting the time switch



On the start mask click the list of time switch types that can be programmed with this software.

The time switch type must be in conformity with the inscription on your time switch.

Selecting the language



Click the country icon for the language you would like to use.

If the software is restarted at a later point in time and **no** selection of the country icon is effected, the software will start with the language last selected.



2.3 Selection of the Time Switch



On the start mask click the list of time switch types that can be programmed with this software. Select a time switch.

The exact model type of your time switch is imprinted on the front face of the time switch housing.

When you have selected the language and time switch model, click **OK**.

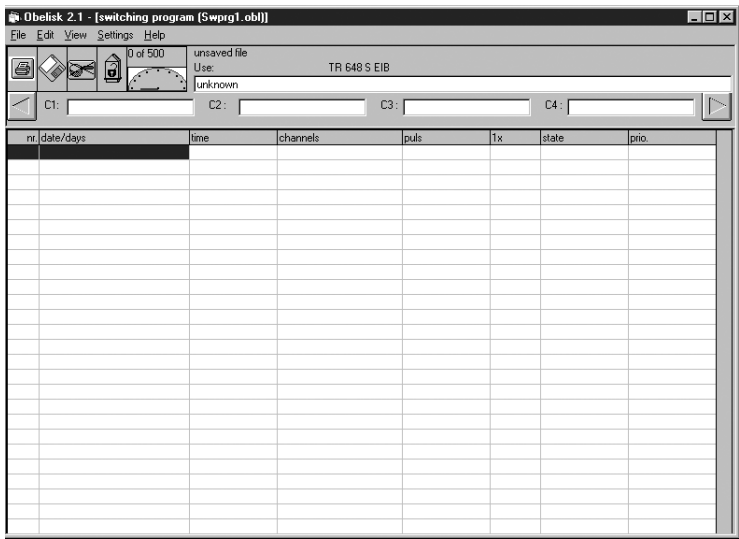
The list view (see section 3) of the Software is opened.

2.4 Starting the Demo

When you have installed the standard version, you can start a demo of the program. The demo function is missing from the "minimum" installation.

3.0 LIST VIEW AND MAIN MENU

After the start mask you are presented with the following dialogue window in the national language selected by you:








In the dialogue window illustrated above you can select the relevant menu by clicking on the header bar.

The Menu Bar

This places at your disposal five different menus in which all necessary commands are summarized in content order. For example the file menu contains all the necessary editing facilities for file management.

The Symbol Bar

Here you will find the symbols for all those commands that are frequently used. For example:

-  **Print**
-  **Save**
-  **Filter**
-  **Memory card write protected/open**
-  **Memory information**

3.1 The Program Menu

Where do you find ...?

File	Edit	View	Settings	Help
New	Switching Prog. Ctrl+S	Switching Program	Edit Assistant ...	Help for Obelisk 2.0
Open ...	Priority Program Ctrl+P	Priority Program	Holidays ...	About
Save	Enter Astronomi- cal Data Ctrl+A	Changeover Table	Device Properties	
Save as ...	Changeover Table Ctrl+W	Astronomical Times		
Open sample ...	Delete Del	Sample Switching Program		
Close sample	Change Ctrl+X	Sample Priorities		
Print ...	Copy Ctrl+C	Program Simulation		
Program Obelisk	Filter ... Ctrl+F			
Read Obelisk				
Exit				

The area with the grey background is described as the so-called main menu.

Click the menu **File** and the function menu is opened:

New, Open, Save, ...

Menu items that end with ... open a further dialogue window.

Activation is effected with the left mouse button or by a combination of keys.

3.2 The Symbol Bar



The symbol bar consists of up to 5 buttons for rapid command input / enquiry.

The 'Printer' button



Click this button and the file currently displayed will be printed out.

Note: If any filters are activated, these may taken into account in the printout.

'Diskette' button



The switching time file is stored with its current name by clicking this button.

'Filter' button



Switching between filtered (filter not crossed out) and non-filtered data (filter crossed out) is effected by clicking this button.

The filter criteria are defined in the **Edit** menu in the **Filter** function menu.

If a **filter is selected**, for better recognition the symbol has a **coloured** background. Double clicking this button leads to the filter setting being opened.

Button 'memory card write protected/open'



By clicking this button, write access to the memory card is alternately opened or closed. The symbol alternates between an open and closed lock.

Memory card write protected

Time switch **with** stipulating public holidays

The memory card can no longer be overwritten by mistake.

Time switch **without** stipulating public holidays

Be careful: Memory card can be overwritten by mistake.

Memory card open

Any time switch can overwrite the memory card, if the memory card has been programmed with the setting **Memory card open**.

Caution: When the memory card is overwritten the old data is deleted.

Memory information



A vector diagram shows what proportion of the time switch memory locations is allocated. The numeric values for free memory locations and the total memory locations are displayed via the vector diagram.

All numeric values relate to switching times and priority times. The summer time/winter time table and maybe the astro times remain unconsidered. Upon clicking the vector diagram a detailed message appears about memory allocation.

Information box 'Use'

The information box contains information about the storage date of the program that has been written or read in via memory card.

For example, if input, the customer address and the various functions of the individual switch channels are displayed. To change the use or channel designation simply overwrite the existing inputs.

In the case of tariff-time switches a program number can be input in addition. The program number is a 6-digit figure. It is stored in the time switch and is displayed at 15 sec. intervals instead of the date on the clock display.

With the 16-channel timer, you can select channel C1 to C16 with the right and the left cursor keys.

4.0 THE FILE MENU

4.1 New File

The program is restarted in the menu **File** and in function menu **New**.

If no stored data is already available, the question is asked automatically:

Save changes in file.obl ?'



Decide **Yes** or **No**.

A new start mask then appears.

4.2 Open file

In the menu **File** in the function menu **Open** an already written switching time file can be opened for further editing. It is not possible to open several switching time files at the same time.

4.3 Saving a File

Upon program start a name is automatically assigned Sztab XYZ.obl.

Sztab = abbreviation for switching time table, **1, 2, 3, ..** = consecutive no., **.obl** = standard extension for the Software.

We recommend that you store a switching time file under an expressive name.

This will make it easier to retrieve at a later stage.

Do not use any umlauts (ä,ü,ö) in the file names and directory names.



Save the file and directory names in the **File** menu and in the function menu **Save**.

For example:

Deployment location/customer: Christoph Hauser

Name of the data file: C_Hauser.obl

The extension should always read **.obl**.

4.4 Saving a File as ...

In the menu **File** and in the function menu **Save as ...** the current switching time file can be stored under another expressive name.

We recommend that you store a switching time file under an expressive name.

This makes it easier to retrieve at a later stage.

For example:

Deployment location / customer: Christoph Hauser

Name of the file: C_Hauser.obl.

The extension should always read **.obl**.

Please do not use any umlauts (ä, ü, ...) for file names and directory names.

If you do not observe this, the warning message 'Not a valid file name' is displayed.


4.5 Opening a Template File



In the menu **File** and in the function menu **Open template** parts can be copied from an already existing switching time file and be supplemented in an existing program or in a new program which is to be written.

Note:

The data in the templates cannot be changed.
Only one template can be opened at a time.

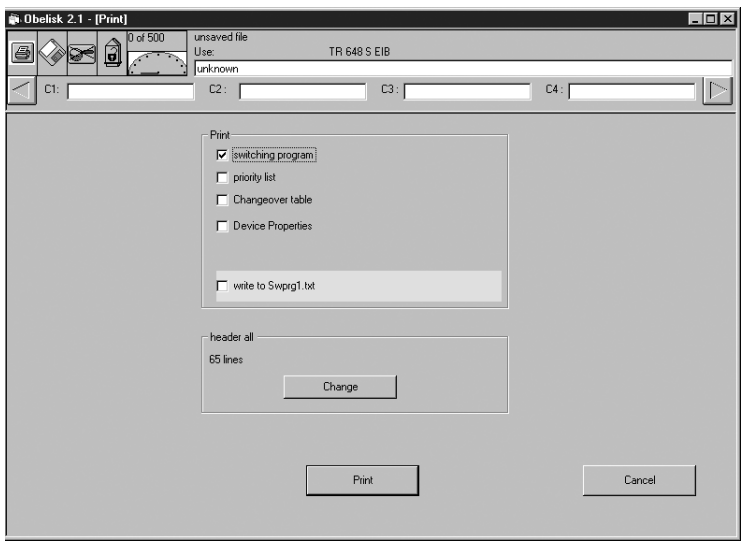
 To open a further template, you must close the 1st template.

4.6 Closing a Template File

With this function you close any copy open template file.

4.7 Printing a File

There are two possible ways of starting printouts.



A. By clicking the printer symbol on the symbol bar you will obtain a printout of the currently displayed list.

Note:

Any filters that are set will be taken into consideration in the printout and on the display.

B. In the menu **File** and in the function menu **Print** the desired lists can be selected and printed out.

Printout of all stored lists

In the above dialogue window you can choose which lists you wish to have printed. If printed via this dialogue window, any filters that have been set will **not** be taken into consideration.

The following lists are possible: - **List of switching times**
- **List of priority times**
- **List of summer time/winter time table**
- **List of device characteristics**
- **Diversion of the printout to a text file.**



Mark by clicking the boxes of the lists you would like to print out.

Changing the printer settings

In the menu Device Properties and in the function in the frame **Print Settings** coordination of the the headings of the individual pages with the paper size can be effected.

Changing the setting



Click **Change**.

4.8 Programming a file

In the menu **File** and in the function menu **Program** a stored switching time file can be loaded into the memory card.

Prerequisite:

- The switching time file must be saved
In the event that the file is not saved, a message is effected:
"Only saved switching time files can be transferred !"
- The interface must be plugged into the matching port and the memory card into the interface.
- The correct interface for the data transfer must be selected.

Selecting the interface:

In the menu **Settings Device Properties ...** the correct port has to be selected in the box **Access to Obelisk**.

Interface for parallel port: LPT 1 represents address 378H, LPT 2 represents 278H, LPT 3 represents 3BCH (can be used only with Win 95 and Win 98).

Interface for serial port: The software supports COM 1 to 4.

It may be necessary to adjust the speed of the data transfer to your PC. This is effected via the delay factor (only with parallel port). To set the delay factor for the parallel port, select from the menu **Settings** the option **Device Properties...** (section 7.3).

4.9 Reading a File

For the transfer the same prerequisites have to be heeded as in the **Programming Obelisk** file.

In the menu **File** and in the function menu **Read** memory card a stored switching time file can be loaded on the PC from a memory card into the Software.

Note:

The function can only be executed if no unsecured switching time data is present on your PC. Before reading in the memory card we therefore recommend backing up on your PC the switching time data that may not be stored.

4.10 Exiting a File

You leave the program software in the menu **File** and in function menu **Exit**.

If any unsaved data are still present, the following enquiry appears automatically:

"Store changes in file.obl" ?

Decide by clicking **Yes** or **No**.

If you wish to save:

Tip: Choose an expressive name. It will help you with later retrieval.

5.0 THE EDIT MENU

5.1 Editing of Input Switching Times

In the menu **Edit** and in the function menu **Input switching time** the dialogue window opens.

Obelisk 2.1 - [Enter The Switching Program]

0 of 500 unsaved file

Use: TR 648 S EIB

unknown

C1: C2: C3: C4:

channels days of the week day month hours minutes pulse priority

channel 1

monday
tuesday
wednesday
thursday
friday
saturday
sunday
daily

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

january
february
march
april
may
june
july
august
september
october
november
december

0 01 02 03 04 05 06 07 08 09 10 11

1 2 3 4 5 6 7 8 9 10 11

none
priority 1
priority 2
priority 3
priority 4
priority 5
priority 6
priority 7
priority 8
priority 9

ON

already entered

Edit Assistant

☐ active after input

New Do it

Ok

Exit

Overview:

In this dialogue window, the dates of the switching time program can be entered. With the 16-channel timer, you can select one channel ▼ from 1 to 16 using a pop-menu.

7-day switching times:

these are compulsory:

- Channel selection consisting of one or several channels (only one channel on the astronomical time switch)
- Week day selection consisting of one or more week days
- Time entry consisting of hour and minute
- Switching status, i.e. On or Off

optional:

- Pulse duration for pulse times (not on the astronomical time switch)
- Priority level

Date switching times:

these are compulsory:

- Channel selection, consisting of one or several channels
(on the astronomical time switch only one channel)
- Date consisting of day and month
- Input of the time consisting of hour and minute
- Switching status, i. e. On or Off

optional:

- Pulse duration for pulse times (**not** on the astronomical time switch)
- **1 x** function

Tip:

Automatic input can be used to facilitate switching time input.

Example:

A switching time is to be programmed with a regular interval of 1.5 hours.
The switch status should alternate every 1.5 hours between On and Off.

This difficult program input can be solved very easily by using the automatic input.

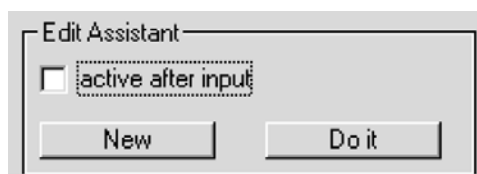
The switching time assistant can be brought into action with two different effects:

1. Each mouse click on the button **Run** increases the displayed switching time by the amount specified in the automatic input. However, the data are not stored.
2. If the box is **active after input** activated:
The displayed switching time is saved and a new switching time generated by clicking **OK**.
The settings in automatic input determine the time difference between the new switching time and the previously stored switching time. The new switching time is a suggested one and can still be altered.

Opening the automatic input



Click **New**.



In this dialogue window you can set according to what specifications the displayed time is to be changed. See also the section **Settings "Automatic Input"**.

5.1.1 Displaying/Scrolling Stored Switching Times

In the framed **already input** box the stored switching times can be displayed again.



Click the following button to scroll **backwards**.



Click the following button to scroll **forwards**.



To finish the input of switching times:



Click **Exit**.

5.1.2 Setting the Switching Status

To set the switching status:



Set the desired switching status by clicking the **On / Off** button

The switching status as set is depicted on the button.

The option On or Off relates to the position of the operating contact of the time switch.

5.1.3 Channel selection

Switching channels can be programmed individually or by the block (on the astronomical time switch and the 16-channel timer only one channel).

Advantage:

Switching times, which are effective for several channels, occupy only one memory location.

Disadvantage:

Switching channels that have been programmed in blocks cannot be displayed individually, i.e. if channels C1, C2, C3 have been programmed with the same switching time and the filter for channel C1 is set, channels C2 and C3 are also displayed.

Selection of one or more channels:



Click the box beside Channel 1, Channel 2, ... or the relevant **lettering**.

A channel is selected, if the box is marked with a cross and the selected channel is on a coloured background.

5.1.4 Selection of Week Days

Selection of one or more **weekdays**:



Click the **box** or the relevant **lettering** of the week day. The selected week day is provided with a coloured background.

Selecting all week days:



Click the box **daily** and all week days are selected at the same time.

5.1.5 Input of the date

The complete date consists of the day of the month and the month.

Setting the day of the month



Move the scroll bar and select with the mouse pointer the day of the date. The selected day is provided with a coloured background.

Selection of the month:



Mark by clicking the desired month. The desired month is provided with a coloured background.

Or:



Click the blue box under **Day**.



Enter the date of the desired week day with the buttons **0 ... 9**.

5.1.6 Input of the Time

The complete time consists of the hour and minutes.

Selection of the hour:



Use the mouse pointer to move the scroll bar in the **Hours** box.



Click the desired hour.

The selected hour is provided with a coloured background.

Display of the selected hour is effected in the box directly beneath it.

Selection of the minutes:



Use the mouse pointer to move the scroll bar in the **Minutes** box.



Click the desired minute.

The selected minute is provided with a coloured background.

Display of the selected minutes is effected in the box immediately beneath it.

5.1.7 Input of the Pulse Duration (not on the astronomical time switch)

Example:

For break signals, delayed On and Off switching times.

Selection of the pulse duration:



Use the mouse pointer to move the scroll bar in the **Pulse** box.



Mark the desired pulse by clicking it.

The selected pulse duration is provided with a coloured background.

Display of the selected pulse duration is effected in the box immediately beneath it.

Note:

If **no** pulse is selected, - - is displayed. **No** pulse is effected, but a normal switching time.

5.1.8 Selection of the 1x function

The function **1x** can be used for all date-related switching times and priority time periods. On time switches with stipulating public holidays the function 1x is not used. Instead the year is input for the priority switching times.

Example:

For holiday and national holiday programs.

Once the switching time has been executed, it is automatically cancelled at midnight.

Selection



Click the text **1x** or the relevant box.

5.1.9 Selection of the Priority Level for a 7-day Program

In the **Priority** box an index **P1 ... P9** can be assigned to each 7-day program. For further information see section 5.2.

5.2 Input of Priority Switching Times

Mode of operation:

With the software up to 9 different 7-day programs can be filed in addition to the normal 7-day program.

A defined 7-day program **P1 ... P9** can be invoked in randomly defined periods of time,

i.e. programming consists of:

1. Defining the 7-day program
2. Defining a starting and ending date

The same priority must be assigned to the two programming items (P1 .. P9).

If a change is made between two 7-day programs, the time switch performs a program review, i.e. the affected channels are switched as if the new 7-day program had already been active for a long time.

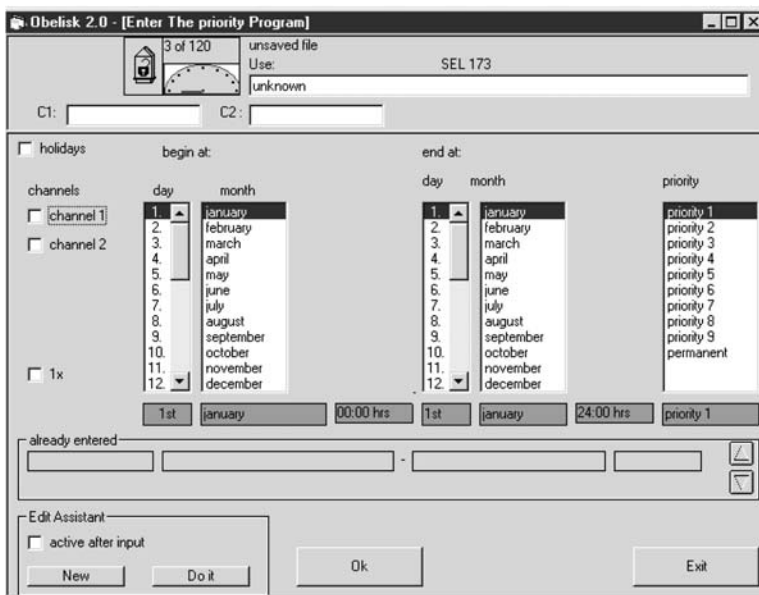
Date switching times that are to be executed only on a specific date have no priority level. In addition they are executed for all 7-day programs.

To input national holidays, a cross can be put against the box **national holidays**. Instead of a start date, national holiday sets (top drop-down menu) then appear and a list of national holidays.

If the priority level **permanent** is selected when defining a priority time period, a fixed switch status (ON/OFF) is deposited instead of a 7-day program.

Note:

- If the time periods of several 7-day programs overlap, the program with the highest index is always effective. For example the 7-day program **P9** suppresses **P3**.
- Priority level **permanent** has precedence over all other switching times, i.e. neither 7-day programs nor date switching times are executed. Manual switchings (switching preselection) are not possible either.



5.2.1 7-day Program with Priority Allocation

- ✎ Write your desired program as described in sections 5.1.1 to 5.1.5..
- ✎ Assign a priority P1 ... P9 to the 7-day program by clicking the **Priority** box. If a priority is selected, the selected priority is provided with a coloured background.

Note: If **no** priority switching time is activated, the normal 7-day program is executed.

If the time periods of several 7-day programs overlap, the program with the highest index takes precedence. For example 7-day program P9 suppresses P3.

5.2.2 Input of a Priority Time Period

The following data are necessary:

- Compulsory:**
- Channel selection consisting of one or several channels (on the astronomical time switch and the 16-channel timer one channel only)
 - Starting date consisting of day and month (see 5.1.5)
 - Starting year on time switches with stipulating public holidays
 - End date consisting of day and month (not for national holidays, these are always valid only on the day of the starting date)
 - Priority level (see 5.1.9)

- Optional:**
- Switching status (ON/OFF) if priority level **Permanent** is selected (see 5.1.2)
 - **1 x** function (only on time switches without stipulating public holidays)

Programming of a priority time period



Open in the edit menu by clicking **Edit** and then the function menu.

Input priority times.

Channel selection



Click the boxes next to the channel numbers to select one or several channels (astronomical time switch one channel only). With the 16-channel timer, you can select on echannel (1 to 16) using a pop-up menu.

Selection of the priority level (prio-level)



Assign the desired priority **P1 ... P9** to a time period by clicking the **Prio-level** box.



Define the duration of the priority time period start/end.

Duration of the priority switching time:

Always start at 00.00 hours on the day of the starting date.

Always end at 24.00 hours on the day of the end date.

Automatic input can be used to facilitate entry.

For further information about automatic input, see section 7.1.

The screenshot shows a software interface titled "already entered". It contains four input fields: "C1 ON", "daily", "6:00 hrs", and "prio. 3". To the right of these fields are two small square buttons with diagonal arrows, one pointing up-right and one pointing down-left.

Review of what has already been stored:

In the **already input** frame you can have displayed again the stored priority switching times. By clicking the arrow buttons in this frame you can scroll the priority times already input.



Click the following button to scroll **backwards**:

Click the following button to you scroll **forwards**:



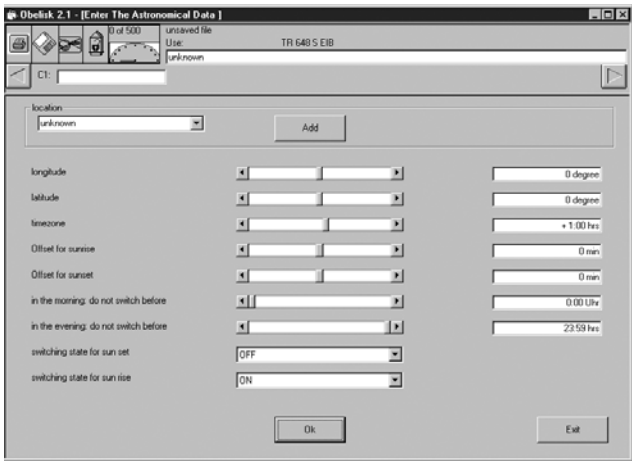
5.2.3 Input of National Holidays

For the programming of new national holidays or national holiday sets see section 7.2.

- Click the box **National holidays**. A list of national holiday sets with the relevant national holidays appears.
- Select the channel and priority level.
- Select a national holiday set by clicking it. If you wish to select all national holidays, click **all** in the national holiday set.
- Select individual national holidays from the national holiday set by clicking them. If you wish to select all national holidays from the national holiday set, click **all**.
- Click **OK** to confirm your selection.



5.3 Input of Astronomical Data (astronomical time switch and the 16-channel timer only)



The astronomical time switch calculates from the astronomical data the sunrise and sunset times in a year. These times are the switching times of the astronomical time switch. These times are the switching times of an stronomical program.



From the menu **Edit** select the option **Input astronomical data...**
A dialogue window opens.

There are two possibilities of inputting data:

- Selection of a location in the list box **Location** (section 5.3.1).
- Input of longitude, latitude and time zone by means of the scroll box (section 5.3.2).

5.3.1 Editing a Location in the List Box "Location"

Selection of a location in the list box "Location"



Click the downward pointing triangle and select a location.
The astronomical data of the location are loaded from a data base.



Click **OK** to save the setting.

Adding a location to the list box "Location"



Input the data specific to the location by means of the scroll box.



Click Add. You are then asked for the name of the location.



Input a name for the location and click **OK**.
This name appears in the list box

Deleting a location in the list box "Location"



Select a location and click **Delete**.

5.3.2 Input of Astronomical Data by means of the Scroll Box



Using the scroll bars select the longitude, latitude and time zone of your location.

Note: You can find the longitude and latitude in an atlas.
A world map of the time zones is enclosed with the astronomic time switch.

5.3.3 Input of an Offset

You can add an offset to the calculated switching times for sunrise and sunset individually. The offset shifts all the astronomical switching times by a maximum of +/- 120 minutes. An offset from the calculated switching times can be useful due to local circumstances, e.g., if a high mountain exists to the east of the location, an offset for sunrise is useful. A offset is added to all the calculated switching times, i.e. negative offsets provide for an earlier switching time and positive offsets provide for a later switching time.



Using the scroll bars select an offset for sunrise and an offset for sunset.



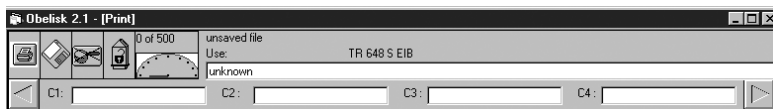
Click **OK** to produce an astro program.

Click **End** if you do not want to produce an astro program.

For the manual adaptation of individually calculated values see section 5.11 **Editing Astro Times**.

5.3.4 Channel selection with the 16-channel timer

One astronomical program can be input on each of channels C1 to C4 with the 16-channel timer. Channel selection is made using the right and left cursor keys.



5.3.5 Input blocked times with the 16-channel timer

With the 16-channel timer, a blocked time can be input especially for the use of shutters in the morning and in the evening. In this way, it is ensured that the shutters are not opened before the time input, even though sunrise takes place earlier (this applies correspondingly in the evenings as well).

5.3.6 Selection of the timer status with the 16-channel timer in contrast to the astronomical timer

With the 16-channel timer, the timer status for sunrise and sunset can be input separately.

5.4 Input of a Summer- / Winter Time Table

Open the dialogue window

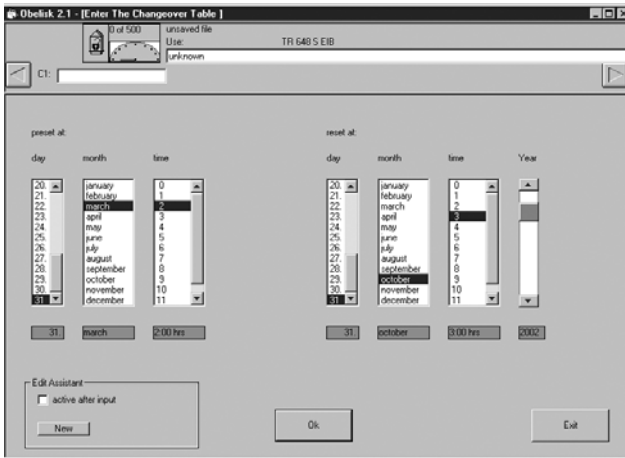


In the menu **Edit** click the function menu

Summer/Winter Time Table.

The illustrated dialogue window is opened.

Only with this software are you in a position to be able to define a completely new norm for summer / winter time changeover that deviates from the changeover rulings already integrated into the time switch. The new norm can be input in advance for up to 20 years.



You can define:

- Starting year of the table
- Starting date of the time offset
- Start of the time offset (time)
- End date of the time offset
- End of the time offset (time)

The following are already integrated into the time switches:

dat 0: no summer / winter time changeover

dat 1: European ruling: last Sunday in March (02 h -> 03 h)
last Sunday in October (03 h -> 02 h)

dat 2: British ruling: last Sunday in March (01 h -> 02 h)
last Sunday in October (02 h -> 01 h)

dat 3: North American ruling: second Sunday in April and last Sunday in October.

5.4.1 Setting the Time for the Summer / Winter Time Changeover

Start and end of the summer / winter time changeover can be effected only at a full hour between 24 hours and 12 hours.

In the box **Turn forward on:**



Use the mouse to move the scroll bar up and down. Mark with the mouse

- on what day
- in what month
- at what time the clocks are to be turned forward
from winter time to summer time

In the box **reset on:**



Move the scroll bar with the mouse. With the mouse mark

- on what day
- in what month
- at what time the clocks are to be turned back

from summer time to winter time.

Defining the starting date for the summer/winter time changeover:



Use the mouse to move the scroll bar in the box **Year**



Mark in which year the summer / winter time changeover is to be effected for **the first time**,

i.e. you can define the starting date for a new clock changeover norm.

If the new changeover norm has been activated, it starts automatically in the defined year.

By means of this option, the years of the following table entries are also defined.

To save the new norm:



Click **OK**.

Programming with "Automatic Input"



In the frame "**Automatic Input**" click **New**.

The settings dialogue for the summer/winter time norm will start. (see 7.1.1)

Activate the box **Active upon input**



Click **OK** to save each year individually.



If you click **All**, all table entries for the next 20 years are immediately produced automatically.

5.4.2 Activation of the Changeover Norm

There are two possibilities for activating the changeover norm.

A. Activation of the new changeover norm immediately after reading it into the time switch:



In the menu **Settings** select the function menu **Device Properties**



In the box **Summer Time/Winter Time Norm** select the input:
according to table (see illustration).



B. Only add the new table to the time switch, but do not activate it.



In the menu Settings select the function menu Device Properties.



In the box **Summer / Winter Time Norm** select the input:
e. g., **as Europe**.

The changeover norm selected here remains active !

The new table is only a supplement to the changeover norms already available.

It is listed in the time switch as **dat 4** for future selection, but not activated.

On saving the file, the following notice is automatically provided:

"You have input a summer/winter time table, however, it is not activated !"

You can now decide again by clicking:

- You would like to activate the changeover norm: **Yes** button.
- You would not like to activate the changeover norm: **No** button.

5.5 Edit Delete

The lines marked in the displayed list are deleted by the function **Edit Delete**. This can be a switching time list, a priority time list or a summer / winter time table.

To delete one line:



Click the first column of the line to be deleted.



In the menu **Edit** select the function **Delete**, or delete by pressing the key **Del**.

To delete several lines in a table:



Click the first line to be deleted.



Drag the mouse pointer across the lines to be marked (1 column at a time).

Release the mouse button when you have marked all the lines you want.

The selected area is marked in colour.



In the menu **Edit** select the function **Delete** or delete by pressing the key **Del**.

Deleting a summer / winter time table

Take heed:

A summer /winter time table can always be deleted **only** if the **last** line is marked.

If this is not done, the following warning appears:

"Deletion only possible, if entries behind this are included".

5.6 Edit Change

Rapid change of a line:



Double click the line of the switching time to be changed.

Or:



Use the mouse to mark the first column (No.) of the line to be deleted.

The selected area is marked in colour.



In the menu **Edit** select the function **Change**.



Change to the desired data (see program input).



Save the change by clicking the button **OK**.

The next switching time to be changed is displayed in the dialogue window.

Changing several lines in a table:

Tip:

If you would like to change several switching times with specific properties, we recommend that you isolate them from the other switching times by means of an appropriate filter (see section 5.8).

You are provided with a better overview for marking the switching times.

For specific applications, the automatic input (see section 7.1) can be a very helpful tool. For example, if you would like to shift several switching times by the same period of time.



Click the first column (No.) of the line to be changed.



Drag the mouse over the lines still to be marked.



Release the mouse button when you have marked all required lines.
The selected area is marked in colour.



In the menu **Edit** select the function **Change**.
The input window opens. The data to be changed are displayed.



Change to the desired data (see program input).



Save the change by clicking **OK**.

The next switching time to be changed is displayed in the dialogue window.

5.7 Edit Copy

With the function menu **Copy**, data (switching times) can be transferred from a template, (i. e. from another data file).

Open template:



In the **File** menu open the function **Open template** by clicking it.

Copying one switching time:



Double click the line to be copied.

This function automatically opens the input window of your output list, filled with the switching time that has been copied into it.

Copying several switching times:

Tip:

If you would like to copy several switching times with specific properties, we recommend that you isolate them from the other switching times previously by means of an appropriate filter (section 5.8). You are provided with a better overview for marking the switching times.



Drag the mouse pointer down over the lines to be copied, Release the mouse button when you have marked all the lines you want.
The selected area is marked in colour.



In the menu **Edit** select the function menu **Copy**.



Assign one or several channels to the copied switching time by clicking them.

The copied switching times can still be randomly changed by selecting them with the mouse pointer or with the keyboard.



Save by clicking **OK**.

The next switching time that is copied in is displayed in the dialogue window until all the required switching times have been copied. Immediately afterwards the switching time/priority time list is displayed. In order to copy switching times again, change with the menu **Window to Template Switching Time / Priority Time List**.

To change and save copied switching times again, see section 5.6.

5.8 Edit Filter

In order to obtain a better general view of the data already stored, with this function you can filter parts out of the input switching times.
With this function you can filter parts out of the input switching times.

Obelisk 2.0 - [Filter For Switching Program]

0 of 120

unsaved file

Use: SEL 173

unknown

C1: C2:

| channels | days of the week | months | pulses | priority |
|---|---|---------------|--------|---------------|
| <input checked="" type="checkbox"/> channel 1 | <input checked="" type="checkbox"/> monday | from: january | all | from: none |
| <input checked="" type="checkbox"/> channel 2 | <input checked="" type="checkbox"/> tuesday | | | |
| | <input checked="" type="checkbox"/> wednesday | | | |
| | <input checked="" type="checkbox"/> thursday | to: december | | to: permanent |
| | <input checked="" type="checkbox"/> friday | | | |
| | <input checked="" type="checkbox"/> saturday | | | |
| | <input checked="" type="checkbox"/> sunday | | | |
| <input checked="" type="checkbox"/> all | <input checked="" type="checkbox"/> all | | | |

switching state: ON Or OFF

Ok Cancel

The following filter criteria can be applied:

To select channels:

Individual filter:



Make your selection in the **Channels** box by clicking the appropriate box.

If the **'All'** box is activated or deactivated, all channels can be quickly selected or deselected.

Note:

If the channel 2 box is marked, only the switching times of this channel are displayed. If, e.g., channels 2 and 3 have been jointly programmed with the same switching time (block formation), despite the filter property **channel 2 only**, both channels are displayed.

To select weekdays:

If the **All** box is activated or deactivated, all weekdays can be quickly selected or deselected. Each week day can be individually marked.

Make your selection in the **Week days** box by clicking.

Note:

If the box, e. g., Wednesday, is marked, only the switching times of this week day are displayed.

If, for example, the week days Monday to Friday have been jointly programmed with the same switching time (block formation), all weekdays from Monday to Friday will be displayed despite the filter condition **Wednesday only**.

To select switching status:

Open the selection list by clicking the arrow ▼ in the box **Switching Status**. You can select whether you would like to have only ON or OFF switching times or both displayed.

To select month:

If a period of time **from - to** is defined, only date or priority times that are active during this period of time are filtered and displayed.

To set the time range:

Make your selection by clicking the arrow ▼ in the list **Months from**.



Make your selection by clicking the arrow ▼ in the list **to**.

To list no date times:

By clicking the arrow ▼ in the list **Months from** select the line **7-day programs only**.

To select the pulse:**Setting:**

By clicking the arrow ▼ in the list **Pulses** select whether only pulses, only normal switching times or both are to be displayed.

To select priorities:**Setting:**

Make your selection by clicking the arrow ▼ in the list **from**.



By clicking the arrow ▼ in the list **to** select which priority levels are to be displayed.

If the filter criteria are defined, in the menu **View** in the functions **Switching times** or **Priority times** you can quickly switch over between the filtered and unfiltered switching times.

Filter activated:

The symbol is marked in colour.



Filter deactivated.



5.9 Sorting Switching Times



In a switching time list click the heading of the column that you want to sort. Preset is sorting by channel, priority and time.



If the overview provided by sorting is not sufficient, you should define a filter or select **Program Simulation** in the menu **Window**.

5.10 Displaying Priority Times for the Switching Times



Place the mouse pointer on the switching time priority or priority time and press the left-hand mouse button.



When the mouse button is pressed you are shown the priority times or switching times as long as they are not hidden by a filter property.

5.11 Editing Astro Times (astronomical time switch and the 16-channel timer)

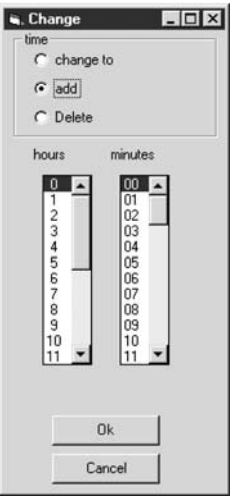
The astro times of the astronomical time switch consist of one switch-on time and one switch-off time each per day. The astro times always affect channel 1 and optionally channel 2 as well. With the 16-channel timer, they have an effect on 4 channels (C1-C4). Switch-on times and switch-off times can be altered or deleted by means of the software. The date and switch status cannot be altered. The date cannot be changed. The switching status also cannot be changed with the astronomical timer.



If you want to edit the astro time:
start by double clicking the time.
The dialogue window **Change** is opened.



If you want to edit several astro times, drag the mouse with the left-hand mouse button pressed over the desired times and click the right-hand mouse button.
The dialogue window **Change** is opened.





If you want to input a new hour and minute for all the marked times, select **change to** in the dialogue window.



Input the new time.

Click **OK**.

All marked times are changed to the new time.



If you want to shift all the marked times by the same time interval, select **shift by** in the dialogue window.

Input the time interval for the shift.

Click **OK**.

All the marked times are changed.



If you want to delete all marked times, select **Delete** in the dialogue window.

Click **OK**.

All the marked times are deleted.

6.0 THE WINDOW MENU



Open the **Window** menu by clicking.

You will find the following functions:

Switching Times

Priority Times

Summer/Winter Table

Astro Times (astronomical time switch and 16-channel timer)

Switching Times Template

Priority Times Template

Program Simulation



Mark one of these functions with the mouse pointer.

Except in the case of **Program Simulation** a list is displayed.

6.1 Program simulation



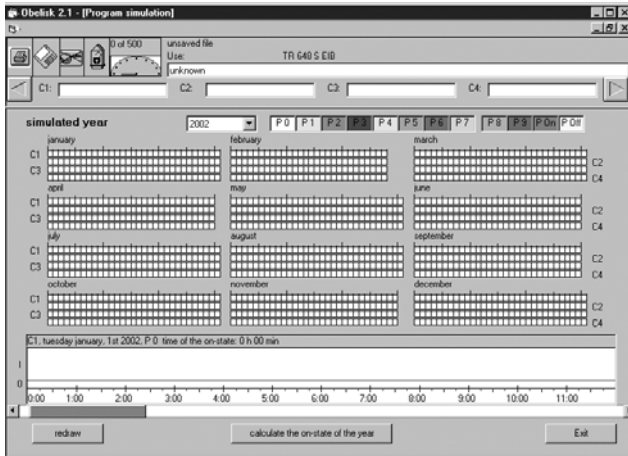
Save your switch program.



In the menu **Window** click **Program Simulation**.

The window **Display of Switching Times** is opened. A graphical overview of the switch program is shown (see illustration).

(1)



(2)

The simulation year for which the overview is valid is set in a list box.

The overview consists of two parts:

1. Year overview for the priority switching times
2. Day overview for the selected channel



We do not guarantee the correctness of the simulation. No indemnity claims are derivable from the simulation results.

Year overview for the priority switching times (1)

The year overview consists of 12 month blocks. Each box in a month block symbolizes a channel on one day. The days are arranged adjacently and the channels one above the other. The box colour marks the priority of the switching program. The colour can be altered by clicking a colour scale box.

Day overview for the selected channel (2)

The channel no., weekday, date, priority switching times and operating hours of the day are displayed in the daily overview. The operating hours are the times in which the channel is switched on. Impulses are not included in the calculation. The day overview is the line diagram at the bottom of the window.

It shows a switching diagram of a day. For the simulation it is assumed that all switching times have been processed once already.

The switch status **ON/OFF** is a black line; pulses are shown as vertical lines. As the diagram resolution is 1 minute, pulses are not shown exactly to the second. The superimposed scale has a grid of 15 minutes.

The background colour represents the colour for the priority switching time.

Selection of a day from the year overview



Drag the mouse pointer with the left-hand key pressed over the year overview.

On the header of the day overview you will see the date and channel number of the box in which the mouse pointer is positioned.



Release the mouse button when you have reached the day and channel you are looking for.

The switching program is shown in detail in the day program.

Display of the time in the day overview



Position the mouse pointer on the line diagram and press the left-hand mouse button.

The time is superimposed on the header of the day overview. The time can be determined to a precision of ± 1 minute.

Scrolling through the day overview



Under the day overview click the arrow to the right or left.

The time period display on the diagram will run forwards or backwards.

Graphic chart "Draw New"



Click "**Draw new**", if the graphic chart is not fully set up.

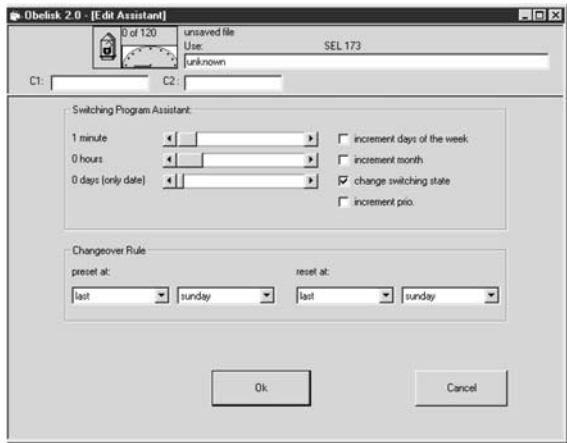
Annual operating hours

By clicking on **calculate annual operating hours**, the annual operating hours in the header of the daily overview will be displayed. This is the period of time in which this channel is switched on. Impulses are not included in the calculation.

7.0 SETTINGS MENU

The settings menu consists of the options:

- Automatic input... (section 7.1)
- National holidays... (section 7.2)
- Device properties... (section 7.3)



7.1 Automatic Input



In the menu **Settings** click **Automatic Input...**

The window **Automatic Input** is opened.

This tool facilitates and speeds up the programming of On / Off, date and priority switching times which are to be effected with a specific regularity.

Similarly, the programming of a new norm for summer / winter time changeover can be implemented very simply and quickly.

Automatic input increases a switching time by a preset value.

Setting is effected in the **Automatic Input** menu in the **Increase switching times by** box.

With the mouse move the appropriate scroll bar.



or

click the buttons left or right.



Here the values for:

- **minutes (0 .. 59)**
- **hours (0 .. 23)**
- **and days (0 .. 364)** can be set.

The days are valid only for date and priority times. Balances carried over are included.

Example: 31 December 20:30 hours + 1 day, 4 hours and 50 minutes = 2 January 1:20 hours.



Set:

- whether the week day is to be shifted, (only for 7-day switching times)

Depending on the setting Monday is turned into Tuesday, Tuesday is turned into Wednesday etc.

The function can also be applied to week day blocks.

- whether the month is to be increased (only for date and priority switching times)

Depending on the setting January becomes February, February becomes March etc.

- whether the switching status can be changed (only for 7-day and date switching times)

Depending on the setting ON changes to OFF and vice versa.

- whether the priority is to be increased by 1 (for 7-day switching times and priority switching times only)

Depending on the setting prio-level 1 becomes prio-level 2 and so forth to prio-level 9.

Note: prio-level 9 is no longer increased.

7.1.1 Automatic Input of Summer/Winter Time

Summer/winter time calculates the new changeover dates on the basis of the fixed norm. Setting is effected in the **Summer/Winter Time** box

Example: In Great Britain the currently valid changeover norm is:
Clocks are put forward by one hour on the last Sunday in March at 1.00 a.m.
Clocks are put back by one hour on the last Sunday in October at 2.00 a.m.



Select in the "**Summer/Winter Time Norm**" box.

for 'Put forward on:' last Sunday

and **for 'Put back on:'** last Sunday

Input possibility for month and time of changeover

In the menu **Edit** in the function menu **Input summer/winter time table**, the date and time of changeover can be defined.

Example: The inputs March, 1.00 hours and October 2.00 hours and the current year.

Define each time individually:



In the menu **Edit** open the function menu **Input summer/winter time table**.



Select the desired data such as day, month, time and year when the summer/winter time is to be put forward or back.



Save each setting by clicking **OK**.

Defining automatically all 20 inputs for changeover:



Select beforehand by clicking in the framed box Automatic Input **active upon input**

After that, the button **all** appears.



Mark the button **all** and the switching standard is immediately programmed automatically for 20 years.

7.2 National Holidays



In the menu Settings click **National holidays...**
The window **National Holiday Settings** is opened.

In the national holiday settings you can:

- Define and delete national holidays (section 7.2.1)
- Define and delete national holiday sets (section 7.2.2).

7.2.1 Defining and Deleting National Holidays



Enter the name of the new national holiday in the text box
Name of National Holiday.



Under **Type of National Holiday**: select **fixed**, **random** or **related to Easter**.

The following actions are dependent on the type of national holiday.

Fixed national holidays

A fixed national holiday on the same date each year; e.g., New Year's Day on 1st January.



If you have selected **fixed** as the type of national holiday, enter the day and month.



Click ">>" to adopt the national holiday in the list.

Random national holidays

Random national holidays are always on a specific day of the week before or after a fixed date. For example, the day of prayer and repentance is on the Wednesday before 23rd November.

With this function each day of the week in a month can be defined:

- the first Monday in April is the Monday after 31st March
- the second Sunday is the Sunday after 7th June
- the last Friday in May is the Friday before 1st June



Click the day of the week that is related to the date.



Enter the day and month of the date to which the day of the week relates.



Click ">>" to adopt the national holiday in the list.

National holidays that relate to Easter

National holidays that relate to Easter have a fixed time difference to Easter; e.g. Whitsun: 49 days after Easter.



With the scroll box select the time difference to Easter.



Click ">>" to adopt the national holiday in the list.

Note: If there is an input error, the national holiday can be removed from the list by "<<". Upon clicking a national holiday the rule that provides the basis appears under the list.

Deleting a national holiday



Mark the national holiday in the list.



Click **Delete**.



Confirm the deletion with **OK**.

7.2.2 Defining and Deleting National Holiday Sets

A national holiday set is a group of national holidays. To differentiate between the regionally different national holidays of a country, the national holidays can be grouped into national holiday sets. In addition you can define your own national holiday sets in order to switch special programs for Saturdays with late opening hours or other such repetitive dates.

Defining national holiday sets



In the menu Settings click **National holidays** and in the dialogue window **Add set**.

A dialogue box appears.



Enter a name for the new national holiday set.

Confirm the name with **OK**.

An empty national holiday set appears.



Mark a national holiday in the list.



Click ">>" on the right next to the national holiday list to copy the national holiday to the national holiday set.

The marking and copying is repeated until all desired national holidays are in the national holiday set.

Note: When the maximum number of national holidays per national holiday set is reached, the button ">>" **disappears**.



Click **Exit**, to terminate national holiday setting.

Deleting a national holiday from a national holiday set



Mark the national holiday by clicking in the national holiday list of the national holiday set.



Click "<<" to the left of the dialogue frame **National Holiday Set**.



Confirm the deletion with **OK**.

Deleting a national holiday set



Mark a **National Holiday Set**.

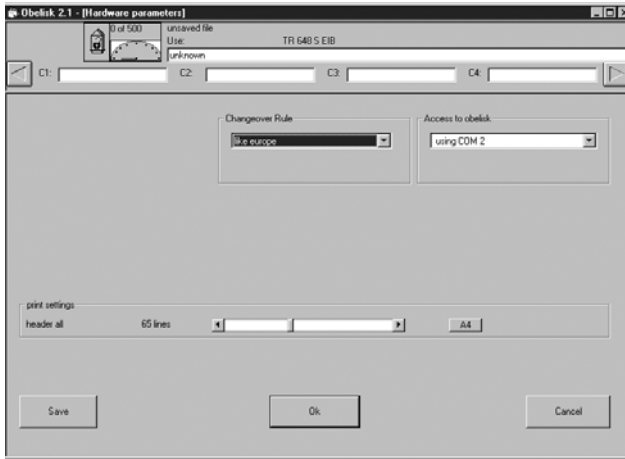


Click **Delete set**.



Confirm the deletion with **OK**.

7.3 Device Properties



Important settings via the programming environment can be effected here.

Saving settings:

For this session only, save

Note:

If the program is terminated, the basic data of the device properties (see illustration) are reset automatically.



Activate by clicking **OK**.

Saving the settings for all ensuing sessions



Activate the button **Save** and then **OK**.

The following settings are possible in the function menu **Device properties**.

Language of the clock (not for the astronomical time switch and the 16-channel timer)

In the framed box **Language of the Clock** it is defined in what language the time switch messages reports are to be effected. This means that after reading in the program with the memory card, the time switch display reports in, e.g., French (Fin instead of End).

Channels for astro times (astronomical time switch only)

In the frame **Astro times affect** it is set whether the astro times should affect only channel 1 or channel 1 and channel 2.

Summer/winter time norm

In the framed box **Summer/Winter Time Norm** it is defined what changeover norm is to be used after reading the memory card into the time switch.

See also Input summer/winter table

Access to Obelisk

In the dialogue frame **Access to Obelisk** it is defined via which Obelisk interface the programming is to be effected.

To transfer the switching times produced with the software the interface must be plugged into the parallel or serial port and the memory card must be plugged into the interface.

Prerequisite for successful data transfer via the **parallel port**:

The parallel printer port must have the following connection:

LPT 1 represents address 378H, LPT 2 represents 278H, LPT 3 represents 3BCH.

If your PC is too fast for the data transfer, you can adapt the delay factor.

In our experience the following factors are useful:

Processor 386 delay between 1...5

Processor 486 delay between 3...10

Processor 586 delay between 5...20

If you have connected an interface for a **serial port** to the PC, select one of the connections COM1 to COM4. The scroll bar for setting the delay factor is not available for serial interfaces.

Measuring pulse (for tariff time-switch)

With time tariff time-switch a channel can be programmed as a pulse output.

The pulse is defined in the **Measuring Pulse** dialogue box. The pulses are always synchronous with the start of the hour.

Print settings

In the framed box **Print Settings** the number of lines per sheet can be entered. This is intended to ensure that a header with information about the switching time file is provided on each page. The printouts are effected with a Windows system printer. Setting is effected in Windows system control.

8.0 HELP MENU

8.1 Help



Click the menu **Help**.

or



Press the **F1** button. You will be provided with help on your current window.

8.2 The Info Window Hotline



In the help menu click the function menu **Info**.

You are then provided with information about the software version and the software producer.

9.0 MISCELLANEOUS

9.1 Setting for Windows 95/98

- When transferring a switching time file to the memory card and when reading a memory card via the parallel interface the DOS program **cardio.exe** is started. This is possible only with Windows 95/98 as the operating system. For **cardio.exe**, the characteristic should be selected **after closing End**.

If the letters are not correctly displayed, we recommend:



Changing the letters in the system control of your PC or in **cardio.exe**.
In cardio.exe. this takes place via the list at the top left of the screen.

Important: The interface for the parallel interface is no longer supplied.

- The colour depth of your PC must not be more than 24 bit (16 million colours).
If graphics are not correctly displayed, a high colour depth can be the cause.

Setting the colour depth for Windows



Select from the menu **Start, Settings, System Control**.

The window **System Control** is opened.



Click **Display**.

The window **Display Properties** is opened.



Click **Settings**.

You can set the colour depth in the dialogue area **Colour Palette**.

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