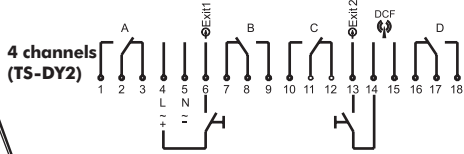
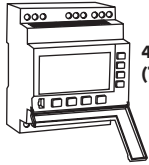
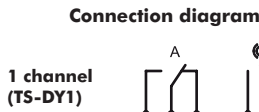
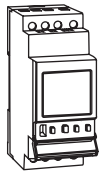


Installation and Operating Instruction for B.E.G. - Time switch/Electronic yearly time switch TS-DY1 and TS-DY2



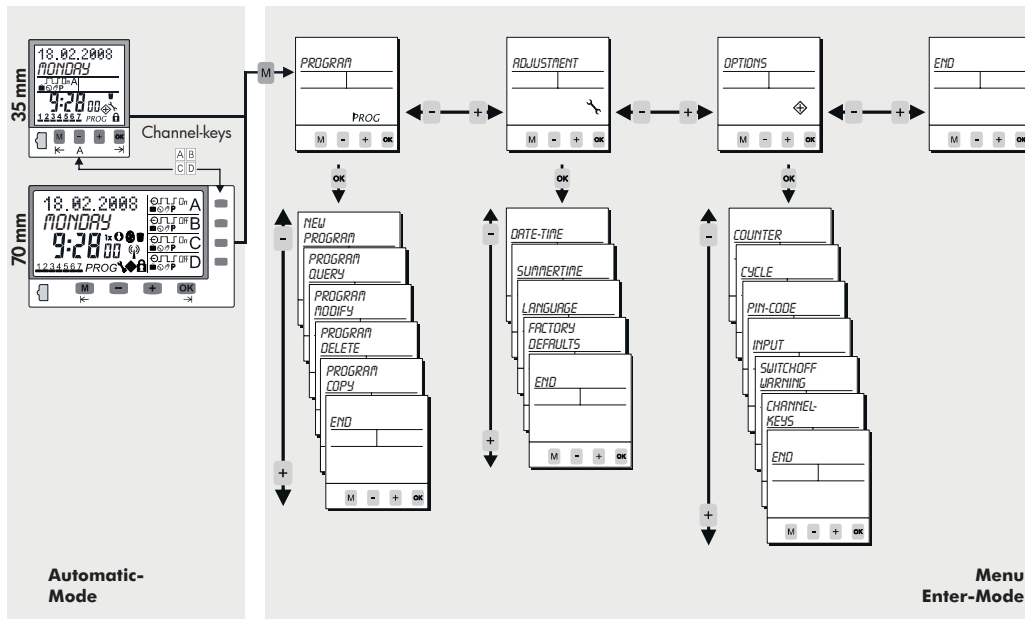
1. Safety instructions

- ⚠ The installation and assembly of electrical equipment must be only carried out only by a skilled person! Otherwise fire danger or danger of an electric shock exists!
- ⚠ Connect the supply voltage/frequency as stated on the product label!
- ⚠ Warranty void if housing opened by unauthorised person!
- ⚠ The electronic circuit is protected against a wide range of external influences. Incorrect operating may occur if external influences exceed certain limits!

2. Initial operation

- The time switch is delivered in Sleep-Mode, the display is switched off.
- Press **OK**-button for 1 second.
- The current date and time is already programmed and European daylight savings time is activated.
- Select the desired language by pressing **+**/**-**-buttons and confirm it by pressing **OK**. (Remark: By pressing **OK** you move one step backwards from the current position.)
- If required, date, time and daylight savings time mode can be adjusted also by pressing **+**/**-**-buttons and a subsequent confirmation with **OK**.

3. Menu overview



4. Symbol legend

- ON Channel is switched ON
- OFF Channel is switched OFF
- 🔒 For the current date the "holiday program" / "permanent by date" is activated
- 🕒 Standard programming step
- 👉 Current state is based on a manual over-ride. The state will be cancelled with the next programming step.
- P Current state is based on a manual over-ride. The state is permanent until terminated manually.
- 1 2 3 4
5 6 7 Days of the week Monday, Tuesday, ... Sunday; The underscores indicate if the program is active for the days above.
- ⏸ Current state is based on a switching time with pulse function
- ⏸ Current state is based on a switching time with cycle function
- 🕒 Weekday function: Switching time is entered by date but is shifted for future years in respect of the weekday (E.g. Tuesday this year... Tuesday next year).
- 🔌 Is displayed if the corresponding channel is activated by the external input.
- 🗑 Element within submenu "program delete"

5. Key function

- M** 1. To access the Enter-Mode (program, adjustments, options) from the Automatic-Mode.
- ←** 2. To revert to the beginning of the current (sub-) menu.
- +**/**-** 1. To adjust the flashing digit.
2. To scroll through a choice
- A**/**B**
C/**D** 1. Automatic-Mode: To switch the channel ON or OFF until the next programming step occurs.
2. Automatic-Mode: A push longer than 3 sec. = Permanent switching status (7).
- OK** 1. To activate the time switch when operated without power supply.
- 2. To confirm the selection or the entered data.

6. Handling advice

- The time switch is programmable without external power supply after pressing the **OK**-buttons.
- To revert one step or one level back while in the Enter-Mode press **M**.
- After completion of a (sub-) menu confirming **END** will return the device into the Automatic-Mode.
- With **+**/**-** the choice changes from **END** to **CONTINUE**. By confirming **CONTINUE** the time switch returns to the beginning of the current (sub-) menu.
- When confirming **END** before completion, the time switch returns to the Automatic-Mode without saving the entered data.

7. Channel ON OFF / Permanent P

Channel ON OFF

By pushing **A**/**B**/**C**/**D**-buttons (**+**/**-**-buttons) a manual switch of the channels take place. The resulting switching status is marked with the hand-symbol and remains until the next programming step occurs. (temporary over-ride)

Permanent switching status P

By pressing the corresponding channel button **A**/**B** for more than 3 sec. the channel is permanently switched ON or OFF. The status remains until the next manual switching occurs (> 3 sec.). (permanent over-ride)

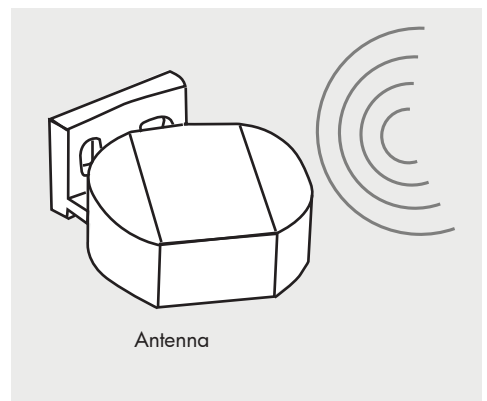
8. DCF (Installation of the antenna LUXOMAT® TS-ACC-FE)

The time switch can process the DCF-77 signal. The antenna is not included in delivery of the time switch.

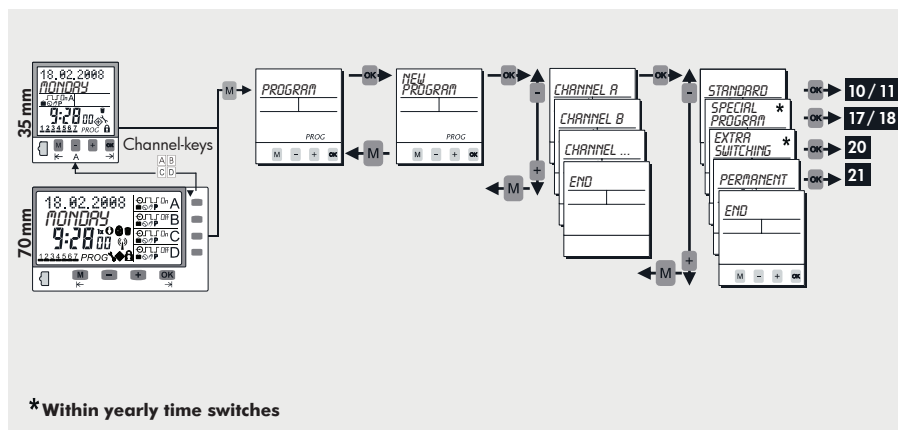
- Disconnect power supply voltage
- Connect the antenna as indicated by the connection diagram
- Connect supply voltage
- Antenna symbol (LCD) flashes for approx. 3 minutes

⚠ Reception is not possible if severe interference is present (Permanent flashing of the symbol/The oscillating crystal is used as time base)

⚠ Defective wire between antenna and time switch (No antenna symbol visible/The oscillating crystal is used as time base)



9. Programming menu

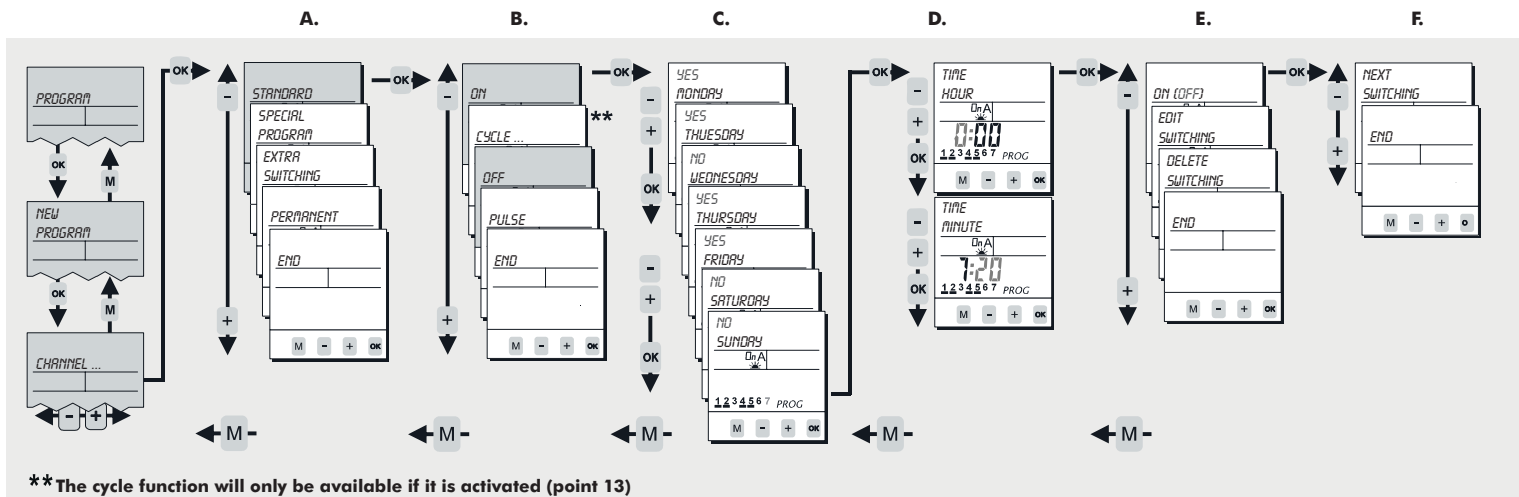


10. Example for the programming of STANDARD switching times (ON and OFF)

- If you want to program a standard weekly switching time (ON, OFF) confirm STANDARD with **OK**.
- For regular switching times choose ON or OFF with **+/-**-buttons and confirm with **OK**.
- Within this level you activate the days of the week (1...7) on which the switching time should happen. With **+/-** you activate "yes" or deactivate "no" the corresponding date. Confirm each day with **OK**.
- Adjustment of the time: Hours **+/-** and **OK**. Minutes **+/-** and **OK**.
- Verify the entered switching time: If the flashing summary of the programming step is correct, verify ON or OFF with **OK**. After verification you have the choice between EDIT/DELETE and END with **+/-**.
- If you want to proceed with programming, confirm NEXT SWITCHING with **OK**. To leave the programming menu confirm END.

Information: You can easily transfer switching times from one channel to the other if you use the copy function.

11. Standard weekly program



12. Cycle

Standard weekly program:

PROGRAM ▶ NEW PROGRAM ▶ CHANNEL A/B/C/D ▶ STANDARD ▶ ...

Special (weekly) program (to be activated by date for the yearly function):

PROGRAM ▶ NEW PROGRAM ▶ CHANNEL A/B/C/D ▶ SPECIAL-PROGRAM ▶ SP-ENTRY ▶ PROGRAM-NUMBER ▶ ...

For the cycle function it is possible to enter a periodic switching time. The time switch acts as a recycling timer and switches between pulse (ON) and pause (OFF). The max. value for pulse and pause is 9:59:59 h:mm:ss.

⚠ If you haven't defined and activated a cycle, the cycle function will not be available as switching time. Therefore you have to activate and define at least one of the four cycles within menu *OPTIONS* and submenu *CYCLE* (point 13).

⚠ The cycle switching time will be terminated by another switching time (ON, OFF, PULS) or by another cycle switching time.

13. Cycle options

OPTIONS ▶ CYCLE ▶ CYCLE 1-4 ▶ ...

You have the possibility to define 4 different cycles. For these purposes choose menu *OPTIONS* and submenu *CYCLE*.

The different cycles can be activated, defined or deactivated (the max. value for pulse or pause is 9:59:59 h:mm:ss):

⚠ The cycle is now offered within the programming menu.

⚠ Further applications of the cycle function in combination with: External input function and/or channel keys function.

- Choose menu *OPTIONS* and submenu *CYCLE* and confirm with **OK**.
- Select with **+/-**-buttons one out of the 4 cycles (CYCLE 1-4) and confirm with **OK**.
- Activate the cycle by changing NO to YES with **+/-**-buttons and subsequent confirming with **OK**.
- Define duration of the pulse ON-TIME (**+/-** ▶ **OK** ...).
- Define duration of the pause OFF TIME (**+/-** ▶ **OK** ...).
- Confirm END with **OK**.

15. Puls

Standard weekly program:

PROGRAM ▶ NEW PROGRAM ▶ CHANNEL A/B/C/D ▶ STANDARD ▶ ...

Special (weekly) program (to be activated by date for the yearly function):

PROGRAM ▶ NEW PROGRAM ▶ CHANNEL A/B/C/D ▶ SPECIAL-PROGRAM ▶ SP-ENTRY ▶ PROGRAM-NUMBER ▶ ...

The pulse function provides you the opportunity of programming a switching time with a defined duration. As soon as the pulse-duration has expired the time switch switches OFF automatically (the duration of the pulse is up to 59:59 mm:ss).

16. Priorities of the switching programs

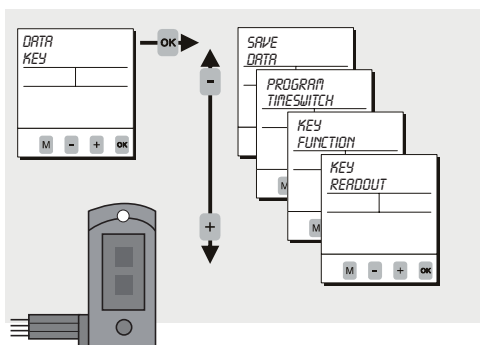
Standard switching times, special programs, extra switching times and permanent by date are executed according to their corresponding priority (by channel and date). All switching programs except extra switching times, suspend all other switching programs with lower priority:

- | | |
|-------------------------|--|
| highest priority | ⇒ Manual over-ride Permanent (3 sec. push) |
| ↑ | ⇒ Permanent by date |
| ↑ | ⇒ Extra switching time* |
| ↑ | ⇒ Special program 10 by date* |
| ↑ | ⇒ Special program by date* |
| ↑ | ⇒ Special program 01 by date* |
| lowest priority | ⇒ Standard weekly program |

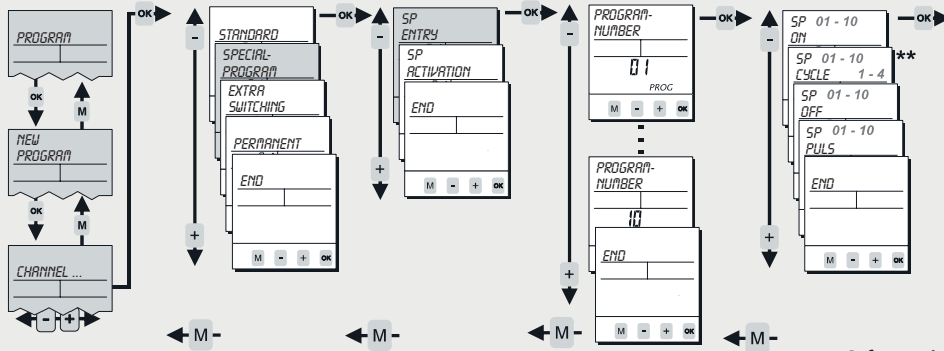
14. Data key (option)

With a Data key following activities are possible:

- **SAVE DATA:** Writes the data from the time switch into the memory of the Data key.
- **PROGRAM TIMESWITCH:** Writes the data located inside the key into the memory.
- **KEY FUNCTION:** The time switch will solely apply programming steps from the Data key. The switching program of the time switch is suppressed.
- **KEY READOUT:** To query the switching program of the Data key.



17. Special program Entry (within yearly time switches)



**The cycle function will only be offered if it is activated (point 13)

Information: You can easily transfer switching times from one channel to the other if you use the copy function.

Special program Entry

The yearly function of the switch is realised by special (weekly) programs which can be called up by date. Up to 10 special (weekly) programs can be entered (*SPECIAL-PROGRAM-NUMBER 01* ▶ *SPECIAL-PROGRAM-NUMBER 10*).

△ Execution of the Special program only after activation by date (SP activation see point 18).

Some rules for the programming of Special programs

- Define the program number in which the new step will be an element before a new switching step is entered. (*PROGRAM-NUMBER 01* – *PROGRAM-NUMBER 10*)
- The number of switching times which can be programmed in each special program is only limited by the total number of free memory locations: (*SP ON*, *SP OFF*, *SP CYCLE*, *SP PULS*)
- The dates of the year during which the special program should be applied can be entered within the activation menu (point 18)
- Each special program can be activated as often as there are memory locations are available (point 18)
- During the activation dates of special programs only switching steps of the special program with highest priority will be executed. Remaining special and standard programs are disabled.
- Please note the priorities of the different switching programs (point 16)

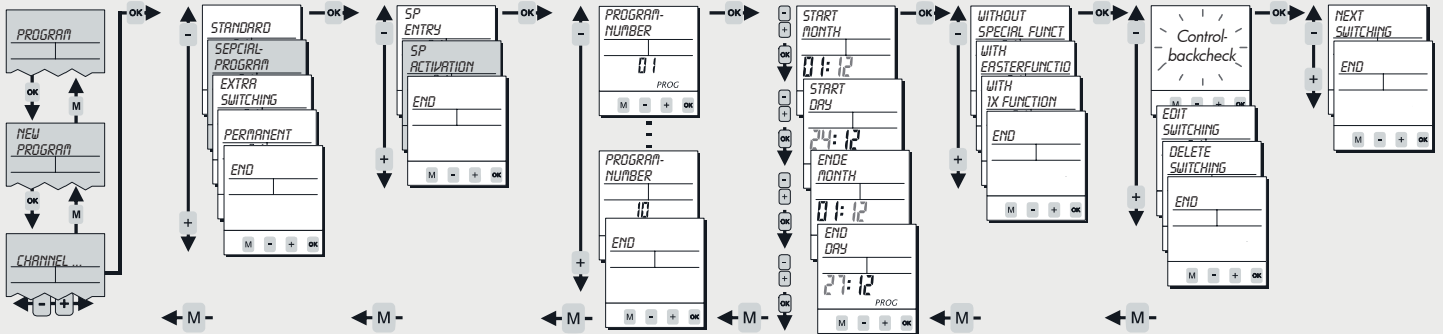
Special program activation by date

A special program will only be executed if it is activated (and if it has the highest priority of all active switching programs (point 16)). Special programs can be activated as often as free memory locations are available. You can choose the special program (*PROGRAM-NUMBER*), the dates for activation (*START-DATE* until *END-DATE*) and additionally following options:

- **WITHOUT SPECIAL FUNCTION:** Special program will be applied each year fixed to the entered dates
- **WITH EASTER FUNCTION:** The time switch takes into account the yearly shift for Easter holiday for the following years and corrects the activation dates. (For programs relative to easter, pentecost carnival, ascension,...)
- **WITH 1X FUNCTION:** Special program will be applied only once.

Information: You can easily transfer switching times from one channel to the other if you use the copy function.

18. Special program activation by date (within yearly time switches)



19. External Input (within 70 mm time switches)

OPTIONS ▶ INPUT ▶ ...

The external input can be connected to a switched contact such as a push-button or light switch. Therefore you can activate and de-activate functions from a remote location or automatically from a control system:

CONNECTION external inputs:

△ **CONNECT THE VOLTAGE / FREQUENCY AS STATED ON THE PRODUCT LABEL!**

△ **EXTERNAL INPUT 1:** A switch or pushbutton can be connected to EXT 1:

Terminal 6 (Voltage EXT 1 = Supply voltage of the time switch)

△ **EXTERNAL INPUT 2:** A potential free switch or pushbutton can be connected to EXT 2:

Terminals 13 and 14 (potential free = 0V)

Functional options of the *EXTERNAL INPUT*:

Within menu *OPTIONS* and submenu *INPUT* you have to define if a switch or a push-button-signal will be applied to the external input. Furthermore you can choose the channel(s) which react to the external signal:

- Using the -buttons select if you are connecting a *PUSHBUTTON* or a *SWITCH* and confirm by pressing .
- Select the channel(s) which will be controlled by the external signal with the -buttons (*CHANNEL ... YES*) and confirm by pressing . Channels which should not be controlled by the external signal remain deactivated, confirm *CHANNEL ... NO* then press to confirm.

△ Define a response function within menu *OPTIONS* and submenu *CHANNEL-KEYS*. This function will be performed by the output channel when the external input is activated!

△ The pre-defined (default) setting is the standard *CHANGE FUNCTION* which changes the switching status from *ON* to *OFF* and vice versa.

20. Extra switching time (within yearly time switches)

PROGRAM ▶ NEW PROGRAM ▶ CHANNEL A ▶ EXTRA SWITCHING TIME ▶ ...

These programming steps are single switching times by date. Extra switching times do not disable switching programs with lower priority.

Adjust the switching function (*AT ON*, *AT OFF*, *AT CYCLE*, *AT PULS*) and the date on which the extra switching time will be executed. The following options are additionally available for the Extra switching time:

- **WITHOUT SPECIAL FUNCTION:** The switching time will be applied each year fixed to the entered date.
- **WITH WEEKDAY FUNCTION:** The switching date takes into account the yearly shift of the weekday of the month. (E.g.: The switching date is always the second Saturday in February for the current and the following years.)
- **WITH 1X FUNCTION:** The switching time will be applied only once.

21. Permanent program

PROGRAM ▶ NEW PROGRAM ▶ CHANNEL A ▶ PERMANENT ▶ ...

The permanent by date program (holiday program) is a permanently on or off status of the channel for the programmed dates. The number of switching times is only limited by the total number of free memory locations. Adjust channel, switching function and the duration by date. The following options are additionally available for the permanent by date program:

- **WITHOUT SPECIAL FUNCTION:** The program will be applied each year fixed to the entered dates.
- **WITH EASTER FUNCTION:** The time switch takes into account the yearly shift for Easter holiday for following years and corrects the activation dates. (For programs relative to easter, pentecost carnival, ascension,...)
- **WITH 1X FUNCTION:** The Program will be applied only once.

22. Channel keys

OPTIONS ► CHANNEL-KEYS ► ...

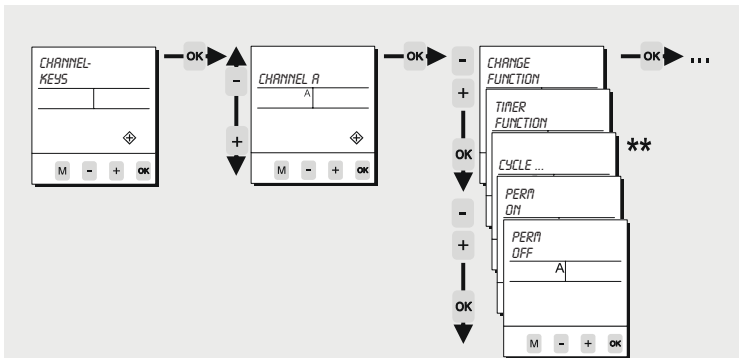
Within the *OPTIONS* menu you will find submenu *CHANNEL-KEYS*. Here you have the opportunity to assign different response functions to the output channels.

These response functions will only be carried out when using the channel-keys **A** **B** **C** **D** of the time switch (manual over-ride) or optionally when activating the channel with the external input. Thus, a programmed switching time will be executed as usual, independent of the settings within this channel-key-menu.

■ Channel *A* ► channel key *A* (push-button "A" of the device)

■ Channel *B* ► channel key *B*

■ ...



** The cycle function will only be offered if it is activated (point 13)

Overview „channel-keys“ functions:

If you have assigned a specific response function to a channel, this switching function will occur if you push the channel-button on the front plate of the time switch (or if the external input for this channel is activated and a signal is applied to the input). For each channel one out of the following functions can be defined:

- **CHANGE FUNCTION** (default setting): By pressing the channel key (or optionally using the external input) the switching status changes from *ON* to *OFF* or *OFF* to *ON*. This corresponds to a standard manual over-ride of the channel.
 - **TIMER FUNCTION**: By pressing the channel key (or optionally using the external input) the Timer starts and the corresponding channel switches *ON*. After the expiry of the Timer-time the channel switches *OFF*. If the channel receives another signal before the expiry of time the time switch reacts as follows:
 - After pressing the channel-button = Timer stops and the channel switches *OFF*.
 - Signal on the external input = Timer restarts/ Staircase lighting timer ► Resettable.
 - **CYCLE 1 - 4**: By pressing the channel key (or optionally using the external input) the cycle function starts. **Attention:** This function is only available if the cycle is activated and defined in advance within menu *OPTIONS* and submenu *CYCLE*.
 - **PERA ON**: By pressing the channel key (or optionally using the external input) the channel switches permanently *ON*. This status remains active until the channel key of the device is pressed again.
 - **PERA OFF**: By pressing the channel key (or optionally using the external input) the channel switches permanently *OFF*. This status remains active until the channel key of the device is pressed again.
- ⚠ The Change function, Timer function and Cycle functions will be overridden by the regular switching program or by a manual over-ride!!!

23. Additional adjustments

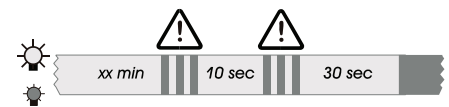
Menu	Main menu	Application
PROGRAM QUERY	PROGRAM	To query the programming steps and remaining memory locations
PROGRAM COPY	PROGRAM	Copy from one channel to another. Memory of the channel won't be overwritten; the copied switching steps appear additionally. ⚠ Permanent by date function is not copied!
PROGRAM DELETE	PROGRAM	Deletion of switching time(s). The program for all channels, single channels and single programming steps within on channel can be deleted.
DATE-TIME	ADJUSTMENT	Adjustment of date and time
SUMMERTIME	ADJUSTMENT	Adjustment of the daylight saving time mode (ON/OFF)
LANGUAGE	ADJUSTMENT	Choice of languages
FACTORY DEFAULTS	ADJUSTMENT	Reset to the state of delivery. ⚠ Date, time and switching program will be lost!
COUNTER	OPTIONS	Displays the hour counter and pulse counter for each channel and the time switch itself.
PIN-CODE	OPTIONS	The time switch can be locked with a 4-digit PIN-Code. The code can be adjusted, activated and deactivated. If you have forgotten the code please call customer service.
Reset-Function		Press all front keys for 2 seconds. The time switch is reset. The values for date and time will be deleted and have to be re-entered. The switching program has not been deleted!

24. Switchoff warning

OPTIONS ► SWITCHOFF WARNING ► ...

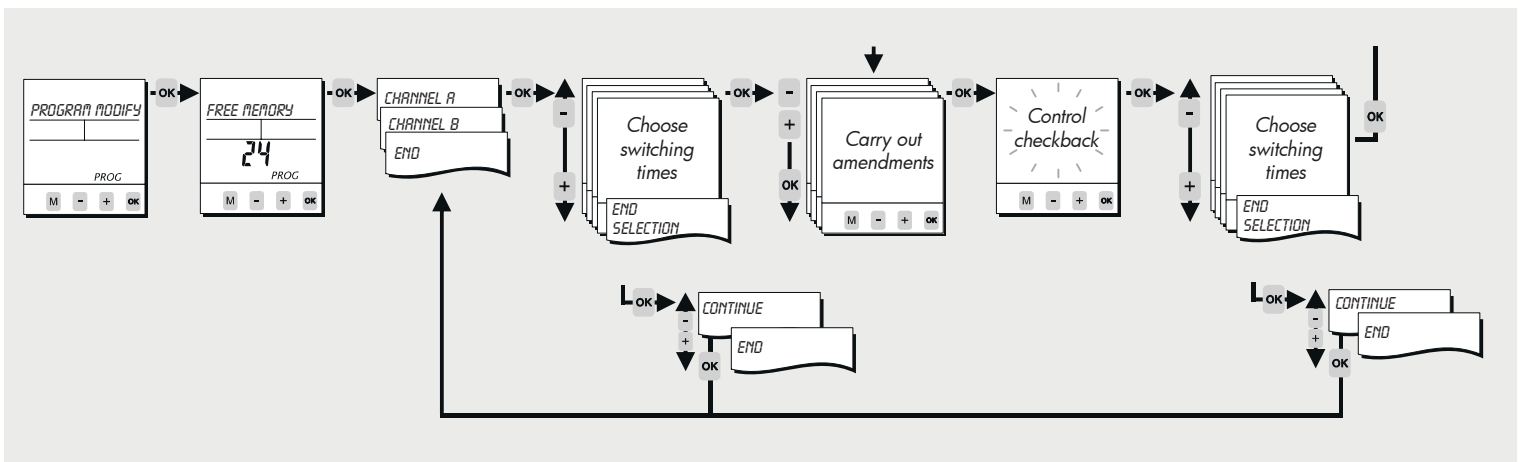
Within menu *OPTIONS* and submenu *SWITCHOFF WARNING* the early warning switch off function can be activated and deactivated:

- **WARNING NO**: The function remains inactive.
 - **WARNING YES**: The function is activated and the switch off is signalled in advance (For illumination purposes the warning is signalled by the flashing of the light according DIN 18015-2 = warning to avoid sudden darkness).
- ⚠ An activated warning affects all channels and all OFF switching times

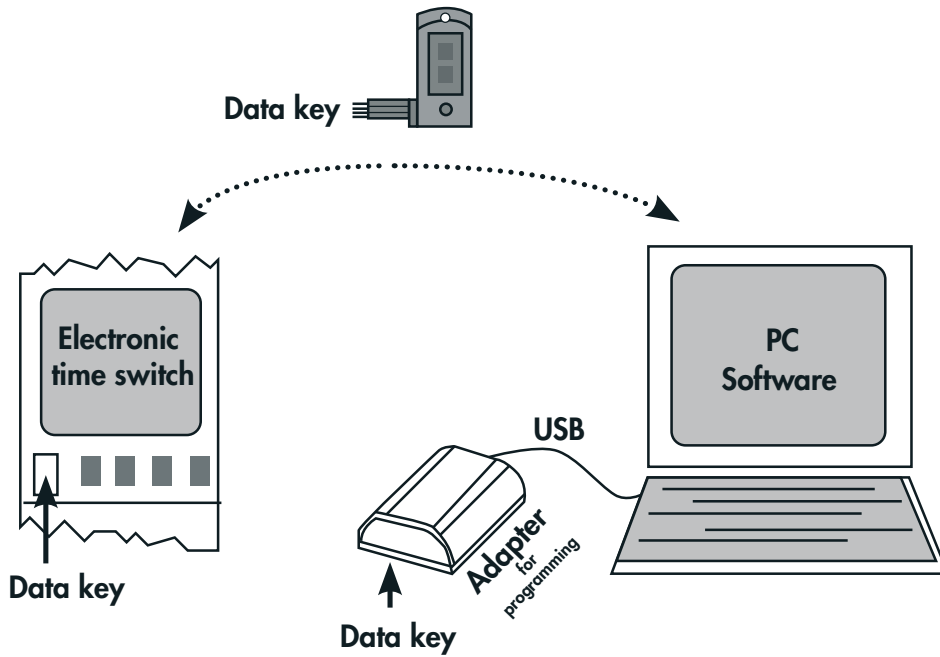


25. Program modify

PROGRAM ► PROGRAM MODIFY ► ...



Within *PROGRAM MODIFY* each single switching time can be modified.



26. Technical data

■ Supply voltage	230V, 50 – 60 Hz
■ Power consumption	TS-DY1 approx. 1.5 VA; TS-DY2 approx. 2 VA
■ Channel (potential-free)	Change-over, contact gap < 3 mm (μ)
■ Contact material	AgSnO ₂
■ Switching capacity per channel	TS-DY1 16 A; TS-DY2 10 A / 250 V at $\cos(\varphi) = 1$
■ Filament lamp	TS-DY1 2.000 W
■ Halogen lamp	TS-DY1 2.000 W
■ Fluorescent lamp uncompensated	TS-DY1 1.000 VA
■ Fluorescent lamp series compensated	TS-DY1 1.000 VA
■ Fluorescent lamp parallel compensated	TS-DY1 550 VA
■ Fluorescent lamp double switch	TS-DY1 1.000 VA
■ Mercury discharge lamp uncompensated	TS-DY1 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W
■ Mercury discharge lamp parallel compensated	TS-DY1 6 x 50 W (7 μ F), 4 x 125 W (10 μ F), 2 x 250 W (18 μ F), 1 x 400 W (25 μ F), 1 x 700 W (40 μ F)
■ Sodium discharge lamp uncompensated	TS-DY1 2 x 250 W, 1 x 400 W
■ Compact fluorescent lamp convent. lamp ballast	TS-DY1 1.000 VA
■ Compact fluorescent lamp electron. lamp ballast	TS-DY1 4 x EB, power independent
■ Switching functions	ON, OFF; pulse; cycle; yearly program
■ Memory locations	TS-DY1 60; TS-DY2 300
■ Minimum interval	1 min.
■ Time base	Quarz crystal or DCF 77 (TS-ACC-FE)
■ Power back-up (at 20°C)	approx. 6 years
■ Program security	unlimited (EEPROM)
■ Quartz cryst. accuracy (at 20°C)	$\leq \pm 1$ sec. / day
■ Display	high resolution LCD (visible area TS-DY1 7.5 cm ² ; TS-DY2 12.8 cm ²)
■ Permitted ambient temperature	-10°...+55°C
■ Enclosure	self-extinguishing thermoplastic
■ Dimensions	TS-DY1 45 x 35 x 58 mm; TS-DY2 45 x 71.5 x 58 mm
■ Distribution board mounting	35 mm DIN-rail (DIN EN 60529)
■ Type of connection	Screw terminals (pull-up type)
■ Type of protection	IP20 to DIN EN 60529
■ Type of protection class	II when installed according to regulations

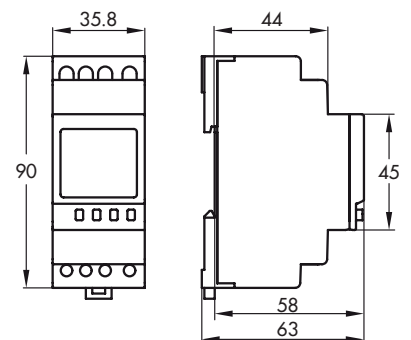
27. Article / Part-Nr. / Accessory

Yearly time switch	Part-Nr.
LUXOMAT ® TS-DY1	92674
LUXOMAT ® TS-DY2	92675

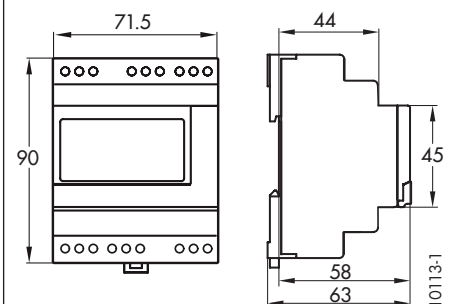
Accessory

Data key	
LUXOMAT ® TS-ACC-DS1	92684
PC-Programming package with USB connection	
LUXOMAT ® TS-ACC-DS2	92685

28. Dimensions



LUXOMAT® TS-DY1



LUXOMAT® TS-DY2