

EN Astronomical time switch

SELEKTA 171 top2 RC 24 V

1714100

SELEKTA 172 top2 24 V

1724100



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1. Basic safety information



WARNING

Danger of death through electric shock or fire!

- Installation should only be carried out by a qualified electrician!

- The device is designed for installation on DIN top hat rails (in accordance with EN 60715)
- Power reserve (10 years) is reduced if memory card is inserted (using battery power)
- The device corresponds to type 1 BSTU in accordance with IEC/EN 60730-2-7
- 3 special programs with date function per channel
- Time synchronisation via connection of an external DCF antenna (SELEKTA 171 top2 RC 24 V)



OBELISK top2 memory card: Avoid mechanical stress or contamination during storage/transportation

2. Proper use

- The astronomical time switch is used, for instance, for lighting equipment (roads, external staircases, display windows, entrances etc.)
- Only for use in closed, dry rooms



Do not use on safety devices, e.g. escape route doors, fire safety equipment etc.

Disposal

- Dispose of device in environmentally sound manner

3. Installation and connection

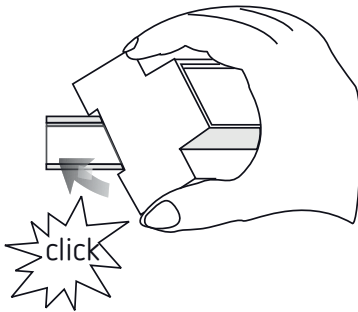


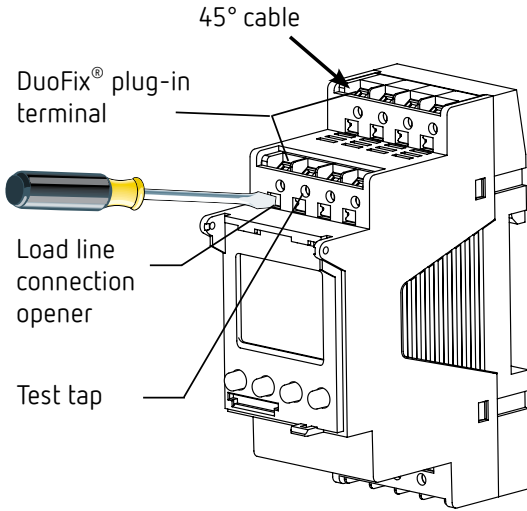
WARNING

Danger of death through electric shock or fire!

- Installation should only be carried out by a qualified electrician!

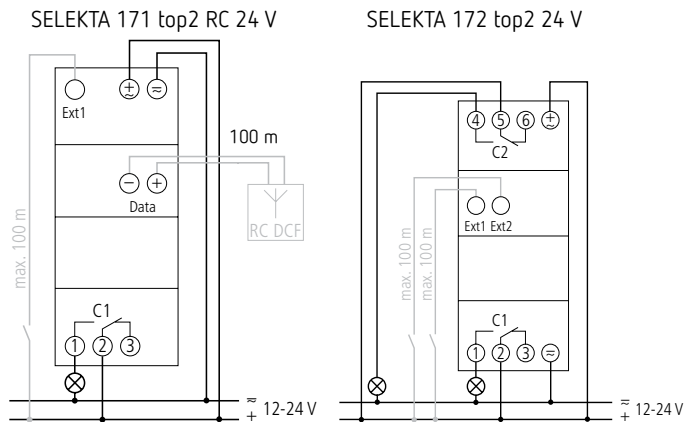
Mounting the time switch





- Mount on DIN top hat rail (as defined in EN 60715)
- Disconnect power source
- Ensure device cannot be switched on
- Check absence of voltage
- Earth and bypass
- Cover or shield any adjacent live components

Connecting the cable



- Strip cable to 8 mm (max. 9)
- Insert cable at 45° in the open DuoFix® plug-in terminal (2 cables per terminal possible)
- Only with flexible wires: To open the DuoFix® plug-in terminal, press screwdriver downwards

Disconnecting the cable

- Use the screwdriver to push the load line connection opener downwards



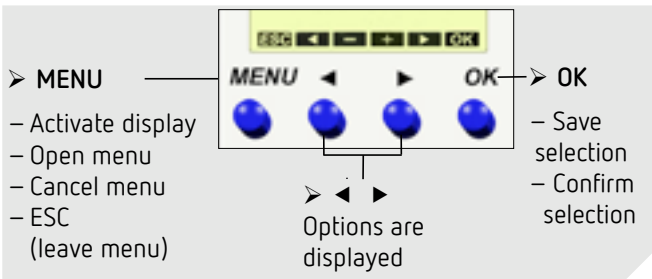
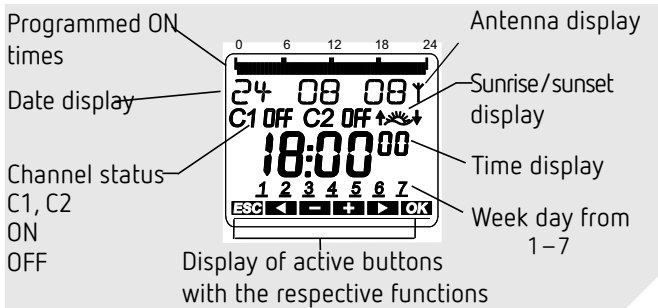
With the SELEKTA 172 top2 24 V the type of low voltage must correspond to low voltage type of the supply voltage (SELV = SELV, PELV = PELV, FELV = FELV).

If the switch output is 230 V, the time switch can be operated using low function voltage but not SELV as supply voltage.

- Lay the control cable separately from the load conductor.

4. Device description

Display and buttons



Operating instructions

1. Read text lines
Flashing text/symbol
is a prompt



2. Make a decision

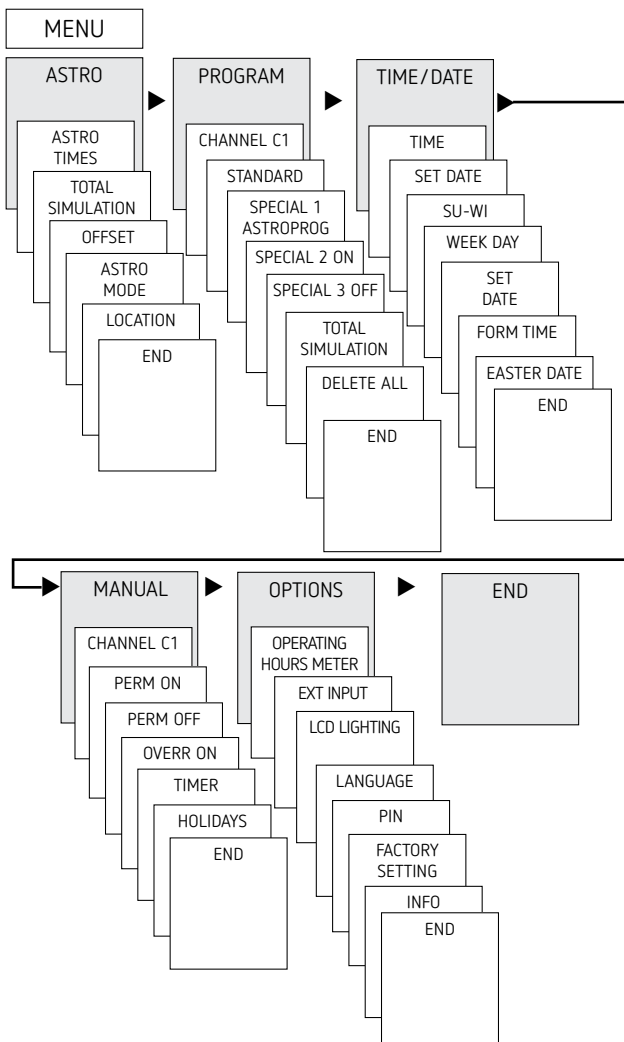


YES
Confirma-
tion
press
OK

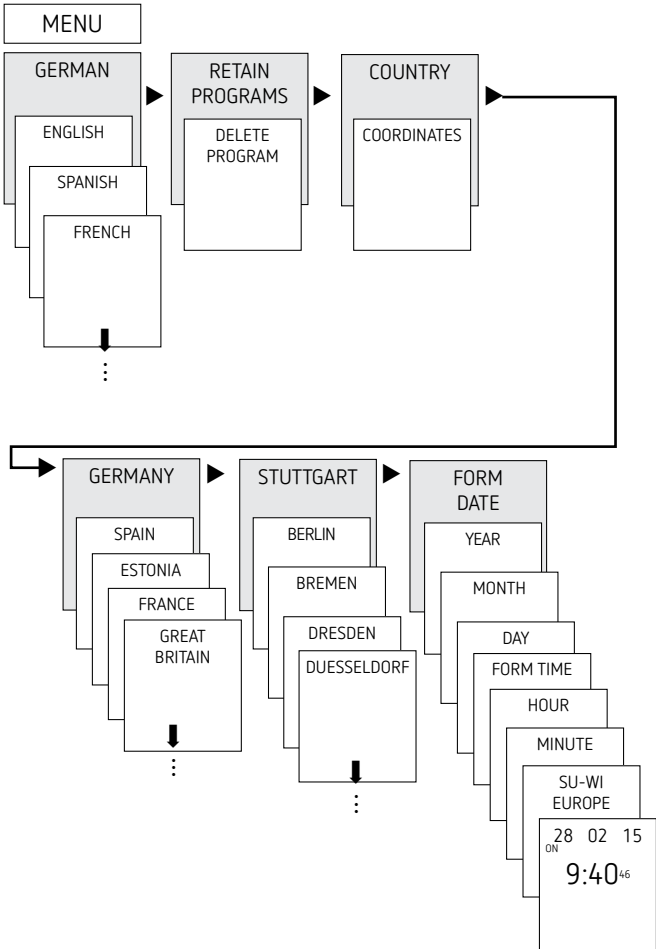
NO
Change/
select
press
◀ ▶



Overview of navigation menu



Initial operation



- Set language, country, town/city, date, time as well as summer/winter time (SU-WI)
- Press any button and follow instructions on the display (see figure).

5. Settings and functions

ASTRO menu

In the ASTRO menu, astro times, complete simulation, offset, astromode and position (locations) can be queried or changed.

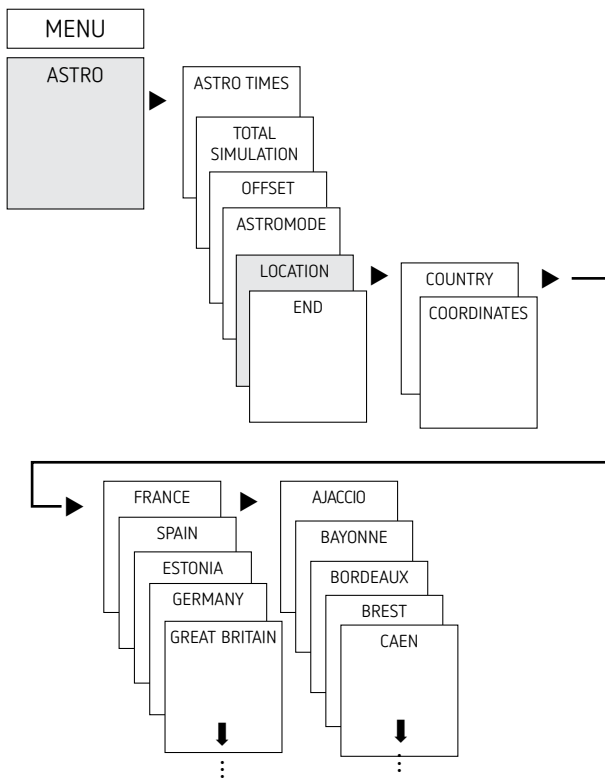
- Astro times
Display of the astro times (including the offset) for the current day
- Complete simulation
Display of the switching response with a freely selectable start date (the holiday program is not shown)
- Offset
The offset (correction value) can be used to shift the calculated astro times by $+/- 120$ min. This means that the astro turn-on and turn-off times can be adapted to local conditions (e.g. mountains, high buildings etc.) or to personal requirements.



- Astromode
 - Evenings on, mornings off: At sunset it switches on, at sunrise it switches off (example: street lighting)
 - Evenings off, mornings on: At sunset it switches off, at sunrise it switches on (example: terrarium)
 - Astro not active: The astro times are ineffective (only the "fixed switching time" time switch function)
- Location
 - Set the location by selecting a town/city or via coordinates (latitude/longitude, time zone). By using the OBELISK top2 memory card or PC software, up to 10 further towns/cities (= favourites) can be added.



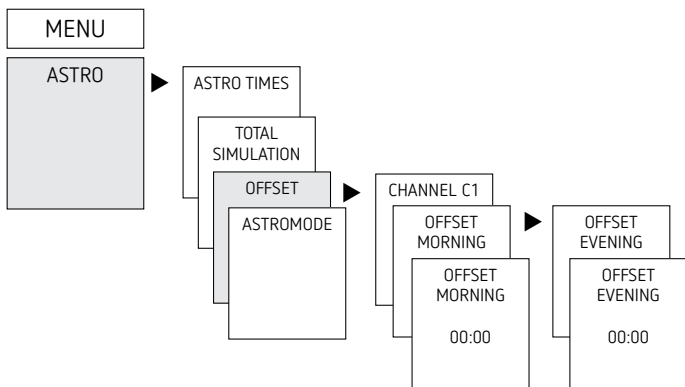
Changing the astro time/location



e.g. enter a different country, a different town/city

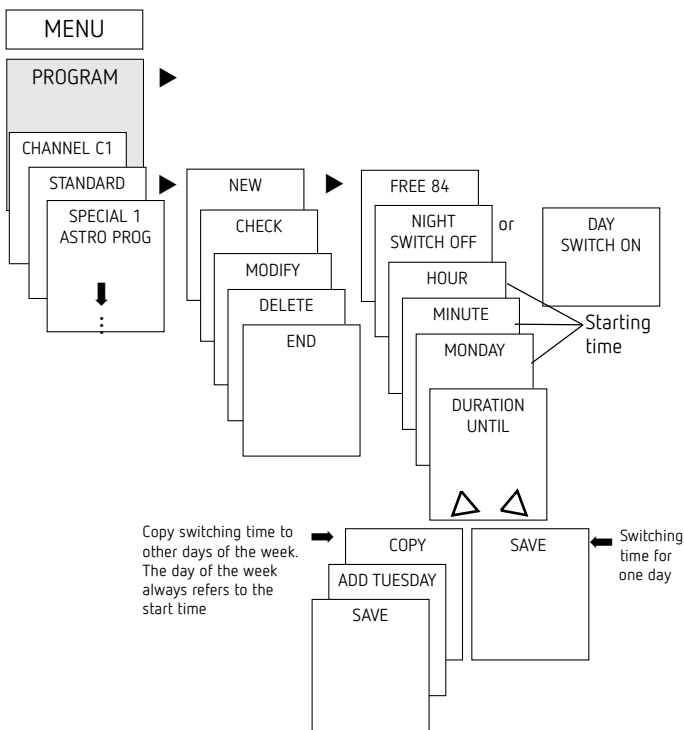
➤ Press MENU (see picture).

Setting the offset function



- Press MENU
- Select ASTRO and press OK to confirm
- Select OFFSET and press OK to confirm
- Select OFFSET MORNING or OFFSET EVENING and press OK to confirm
- Set the time and press OK to confirm

Programming fixed switching time (e.g. in standard program)



- ① A switching time always consists of a start time and an end time (DURATION UNTIL); e.g. night switch-off on Monday 11:00 p.m. – 05:00 a.m.

① There are 84 memory cells available

- Press MENU
- Select PROGRAM and press OK to confirm
- Select CHANNEL, confirm with OK
- Select STANDARD, confirm with OK
- Select NEW, confirm with OK
- Select NIGHT BREAK or LIGHT ON and press OK to confirm
- Set selected switching times (hours, minutes, day) and press OK to confirm
- Select COPY or SAVE
- To save press ► and press OK to confirm
- To copy press OK

Special programs

- The devices SELEKTA 171 top2 RC 24 V and SELEKTA 172 top2 24 V feature 3 special programs, which can be used for calendar-dependent switching.
- Each special program can be activated over one or several date areas.
- There are 3 types of date areas:
 - Fixed date area:
 - e.g. starting time on 2015-04-02 at 04:00 p.m
 - end time on 2015-04-24 at 10:00 a.m.
 - Yearly repeating date area:
 - e.g. Christmas:
 - starting time on 24-12 at 06:00 p.m every year
 - end time on 26-12 at 11:00 a.m. every year
 - Date area depending on Easter:
 - e.g. Whit Sunday and Whit Monday:
 - starting time 49 days after Easter at 00:00 a.m
 - every year end time: 51 days after Easter at 00:00 a.m., every year



① 12:00 a.m. is programmed as 00:00 a.m. of the following day.

Holidays depending on Easter in Germany	
Holiday	days before/after Easter Sunday
Carnival Monday	- 48
Good Friday	- 2
Easter Monday	+ 1
Ascension	+ 39
Whit Monday	+ 50
Corpus Christi	+ 60

- Special program 1
 - **Astro times active**
 - Optional 1x night interruption
 - Optional 1x daytime switch on
 - Active in the programmed date areas

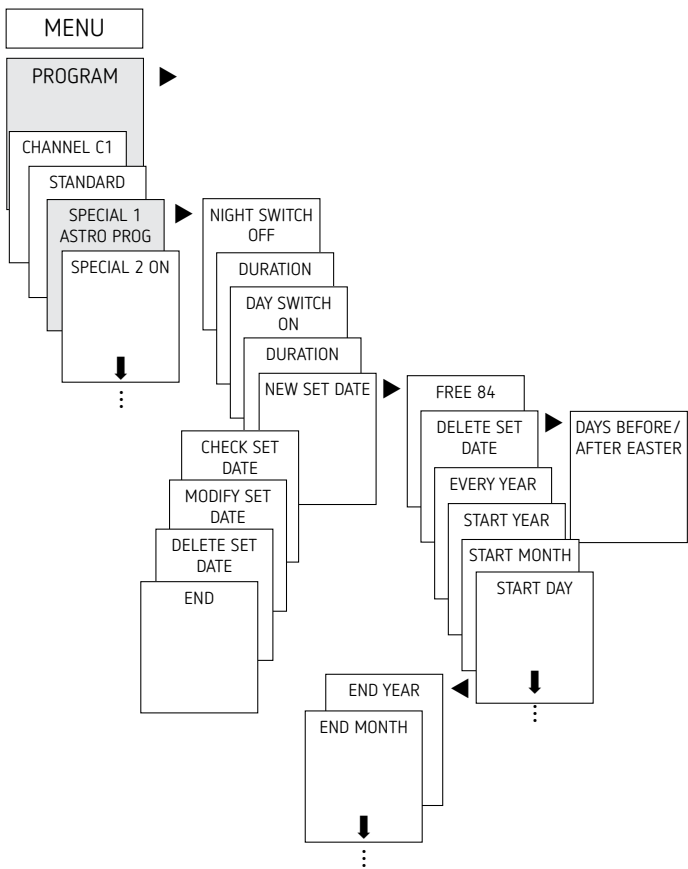
Example: The standard program switches on street lighting depending on Astro times.

A night interruption is programmed from 11:00 p.m. to 04:00 a.m. Special program 1 is active within the date area from April 30 , 12:00 p.m. until May 1, 12:00 p.m. Since no night interruption is programmed, the street lighting will remain on all night.

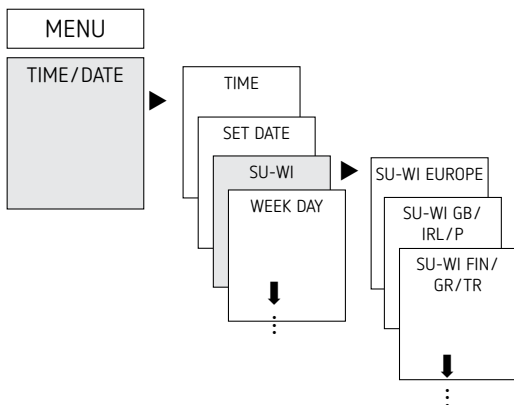


- Special program 2
 - **Perm ON**
 - Always on during the programmed date areas
 - Example:** The standard program switches on lighting of a neon advertising sign only at night. The special program switches on the neon advertising sign permanently during a promotion week from 2015-04-17, 9:00 a.m. until 2015-04-24, 6:00 p.m.
- Special program 3
 - **Perm OFF**
 - Always off during the programmed date areas
 - Example:** The standard program switches on the car park lighting in dependence of the astro times. The special program does not switch on the car park lighting on July 14 from 12:00 q.m. to July 15, 04:00 a.m.



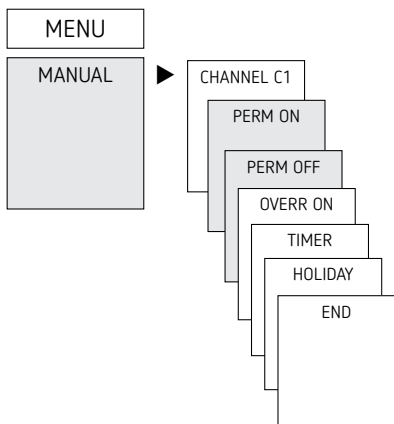


Setting summer /winter time



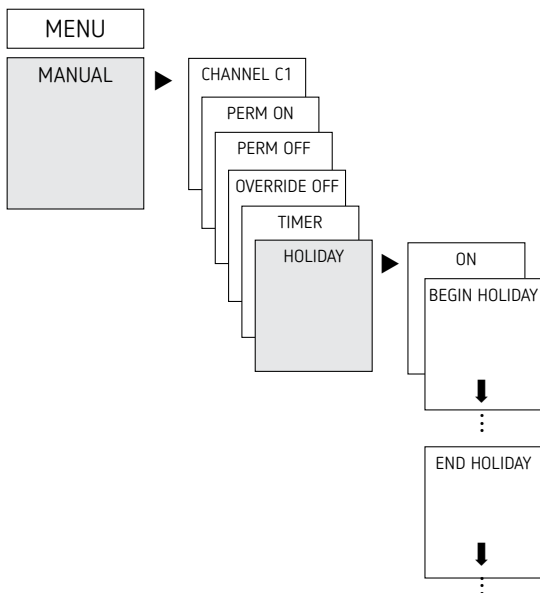
- Press MENU
 - Select TIME /DATE and press OK to confirm
 - Select SU-WI and press OK to confirm
 - Select region for the SU-WI time and press OK to confirm
- ① If a DCF antenna is used, the SU/WI change over has still to be activated.

Switching perm ON / OFF



- Press MENU
- Select MANUAL and press OK to confirm
- Select CHANNEL, confirm with OK
- Select PERM ON or PERM OFF and press OK to confirm

Setting holiday function



- Press MENU
- Select MANUAL and press OK to confirm
- Select CHANNEL, confirm with OK
- Select HOLIDAY and press OK to confirm
- Select ON and press OK to confirm
- Select BEGIN HOLIDAY and press OK to confirm
- Enter YEAR, MONTH, DAY, HOUR and press OK to confirm
- Select END HOLIDAY and press OK to confirm
- Enter YEAR, MONTH, DAY, HOUR and press OK to confirm

Setting external input

For the channel, an EXT INPUT (see figure) can be set with different functions.

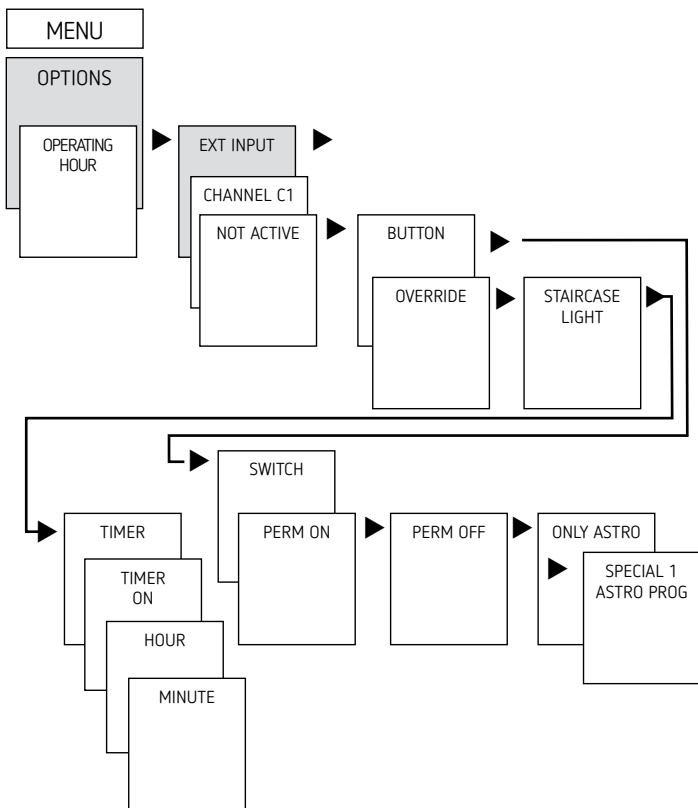
3 sub-menus can be selected: not active button (function), switch (function)

- NOT ACTIVE: The external input has no function
- BUTTON: Manual (manual control), Timer (countdown timer), and staircase light timer switch are selectable
- SWITCH: Perm on, perm off and Astro only, Astro program are selectable

① If a function is activated via an external push button or switch, EXTERNAL is displayed.

- Press MENU, with ► select EXT INPUT and follow the indications on the display

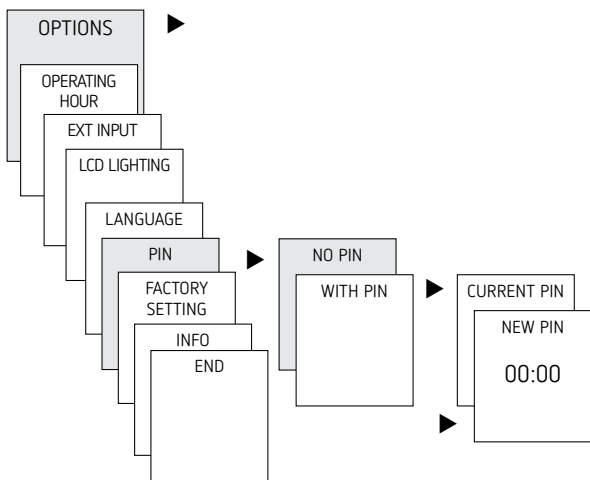




Activating PIN code

The PIN code is set in OPTIONS via the menu.

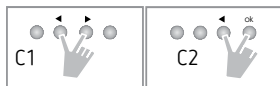
- ① If you have forgotten your PIN, please call the Theben Hotline.
- ① Have the serial number of the device ready.



Setting manual or permanent switching

Manual or permanent switching can be set via the menu in MANUAL or (in the automatic screen) by button combination (see picture).

- Manual control
Reversing the channel status to the next automatic or programmed switching.
- Permanent switching
As long as a permanent switching (on or off) is activated, the programmed switching times are ineffective



Activating manual control

- ▶ Briefly press both buttons simultaneously

Activating permanent switching

- ▶ Press both buttons simultaneously for 2 seconds

Cancelling manual/permanent switching

- ▶ Press both buttons simultaneously

Hour counter

The operating hours of the channel (relay) are displayed and deleted in the OPTIONS menu. If the number of operating hours exceeds the value set in the Service menu, SERVICE will appear in the display.

Example: Replacing a lamp after 5,000 h.

- ▶ Delete operating hours or set a higher value in Service (e.g. to 10,000 h)

Receiving the time signal with appropriate top2 RC antenna (only with SELEKTA 171 top2 RC 24V)

- ① The top2 RC-DCF antenna (9070410) can be connected to the SELEKTA 171 top2 RC 24 V time switch.
- ① Follow the advice in the top2 RC-DCF antenna operating instructions.
- ① Connection to the top2 RC-DCF antenna allows the time switch to be automatically synchronised via DCF signal.



- ① After connecting to the power supply or resetting, the automatic display is changed to as soon as the DCF transmission signal has been received.

Adjusting time zones

After successful synchronisation, the time zone can be altered in the TIME / DATE menu.

- In the TIME menu (display: MODIFY HOUR) correct the applicable local time (time zone).

DCF transmission signal

reception:

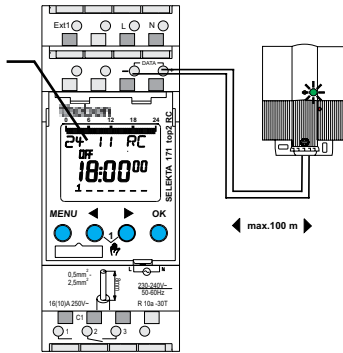
Display: Day + Month + RC
(Radio Control)

No reception of the DCF
transmission signal

Display: e.g. 24 11 07 ⚡

No connection to antenna:

Display: e.g. 24 11 07




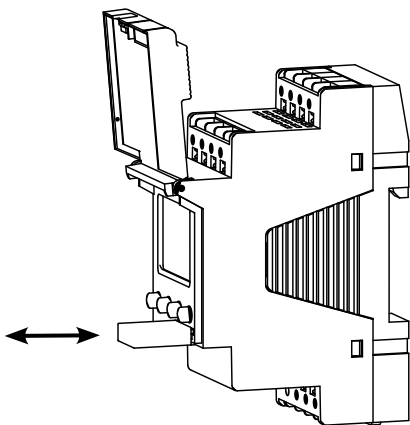
Using the OBELISK top2 memory card

- ① The OBELISK top2 memory card is not included in the scope of supply of the device, but can be ordered as an accessory (9070404).

All functions can also be set on the PC using the OBELISK software and transferred to the device via the memory card.

- ▶ Insert memory card in the time switch
- ▶ Read in/out saved switching times and device setups in the time switch or start Obelisk program
- ▶ Remove memory card after copying etc.

 Avoid mechanical overload and contamination during storage/transport



Copying OBELISK → Time switch

This copies the switch programme and optionally all time switch settings (e.g. form time etc.) from the memory card to the time switch.

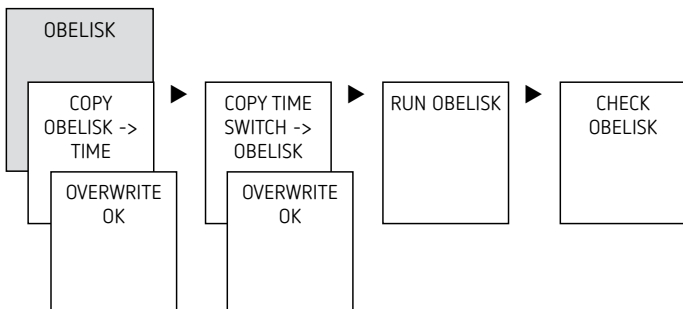
Copying Time switch → OBELISK

Copies all switch programmes and settings from the time switch to the memory card.

Starting OBELISK program

Takes over the switching times that are programmed on the memory card.

As soon as the memory card is removed, the switching times of the time switch are re-activated.



- ① The current OBELISK top2 PC software is available at www.theben.de.

Resetting the time switch

- ▶ Press the 4 buttons simultaneously
→ You can choose between RETAIN PROGRAMS and DELETE PROGRAMS

6. Technical data

Operating voltage	12–24 V, 50–60 Hz, +10 % / –15 %, 12–24 V DC, +10 % / –15 %
Standby	0.9 W (1714100) 0.2 W (1724100)
Switching capacity max.	16 A (at 250 V AC, $\cos \varphi = 1$)
Switching capacity	2 A (at 250 V AC, $\cos \varphi = 0.6$)



Switching capacity min.	10 mA/230 V AC 100 mA/12 V AC/DC
Protection rating	IP 20 in accordance with EN 60529
Protection class	Protection class: II in accordance with EN 60730-1 subject to correct installation for supply with FELV and/or mains switching
Protection class	III for supply with SELV and switching of SELV
Operating temperature	-30 °C ... +55 °C
Shortest switching time	1 min.
Power reserve	10 years at +20 °C
Time accuracy (typical)	± 0.25 s/day (25 °C)
Rated impulse voltage	4 kV
Pollution degree	2
Contact	Changeover contact, μ contact
Max. switching cycles with 16 A resistive load	50 000
Incandescent lamp load	1000 W
Halogen lamp load (230 V)	1000 W
Fluorescent lamps (LLB low-loss ballasts): uncompensated (230 V) series compensated (230 V) parallel compensated (230 V)	1000 VA 1000 VA 80 W (max. 12 μ F)
Fluorescent lamps (EB – Electronic Ballasts) (230 V)	120 W
Compact fluorescent lamps (EB)	30 W
LED lamps (< 2 W)	6 W
LED lamps (2 W – 8 W)	20 W
LED lamps (> 8 W)	25 W
Corresponds to type 1 BSTU in accordance with IEC/EN 60730-2-7 or IEC/EN 60730-1	
Switching of any external conductor is permitted.	
Approved for switching SELV and mains voltage	

7. Contact

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