



1. General information

- Digital time switch with yearly and astro program
- The device is designed for installation on DIN rails (in accordance with EN 60715) and conforms with type 1 STU in accordance with IEC/EN 60730-2-7
- Bluetooth integrated
- KNX Data Secure
- 16 special programs, 800 memory locations
- Programmable with OBELISK top2/3 PC set (9070409); with PC and OBELISK top3 software and via mobile devices with the OBELISK top3 app
- Time synchronisation by connecting an external antenna or via the KNX bus
- **Accessories:**
OBELISK top3 PC software, OBELISK top2/3 memory card (9070407), OBELISK top3 (9070130), OBELISK top3 app (for Android, iOS), RC-GNSS R antenna (9070807), RC GNSS antenna (9070823), RC-DCF antenna (9070410)

2. Safety



Assembly and installation should only be carried out by a qualified electrician, somebody who has completed appropriate professional training and has the knowledge and experience necessary to be able to recognise and avoid the potential dangers posed by electricity.



Before installation/disassembly, disconnect the mains voltage and ensure that the parts are no longer live.



Prior to commissioning and using the product, read and observe all the operating instructions.

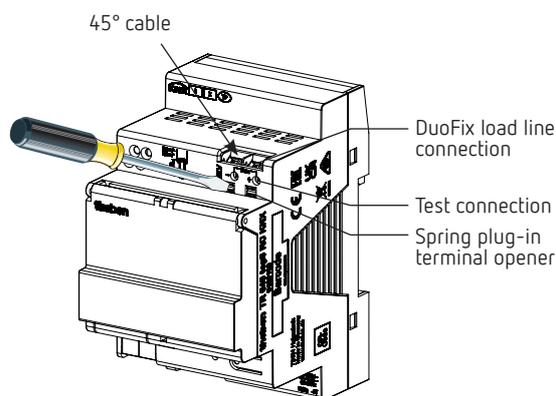
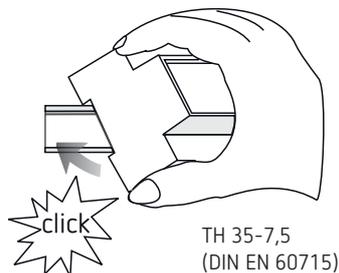
3. Proper use

- The time switch is used, for example, for light controls, school bells, church bells, ventilation systems, bell systems, etc.
- Only for use in closed, dry rooms

4. Installation and connection

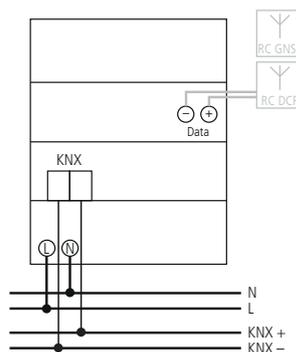
Mounting the time switch

- Mount on DIN rail.

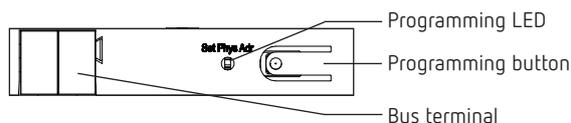


Connecting the time switch

- ⓘ The mains connection L, N is only necessary when used with an antenna for time synchronisation.



Bus connection



- Plug the bus cable into the bus terminal and observe the polarity.

Connecting the cable (terminal L, N)

- Strip cable by 8 mm (max. 9).
- Insert cable in the open DuoFix plug-in terminal at 45°.

① 2 cables per terminal position possible.

- To open the DuoFix plug-in terminal, press screwdriver downwards.

Disconnecting the cable

- Use the screwdriver to push the load line connection opener downwards.
- Program the physical address: Press the programming button.
 - The programming LED lights up and the device is in programming mode.

Connecting the antennas

You can connect DCF or GPS/GNSS antennas to synchronise the time, date and location (location only with the GPS/GNSS antenna).

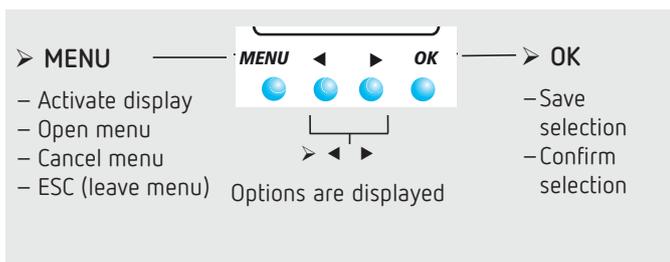
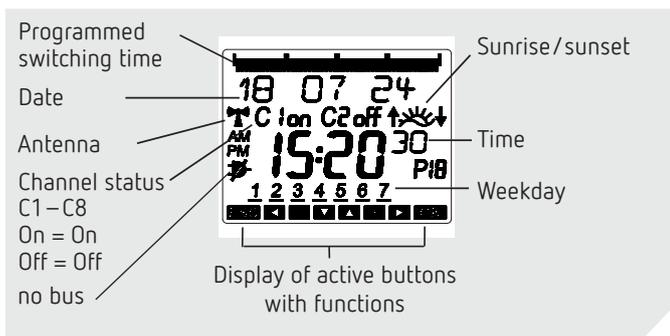
Alternatively, the time/date can also be synchronised via KNX.

Antenna symbol in the display

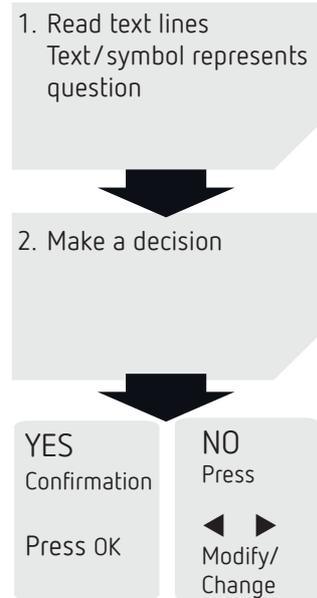
no antenna symbol	antenna not connected or no mains supply
antenna symbol flashing	synchronisation in progress
antenna symbol lights up permanently	synchronised

5. Device description

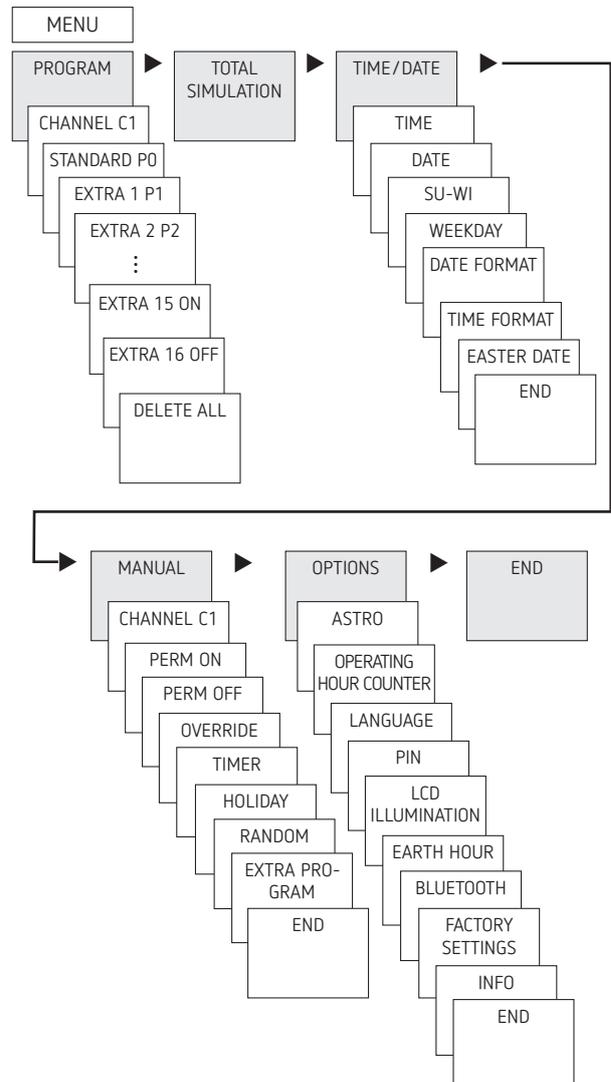
Display and buttons



Operating principle



Overview of navigation menu



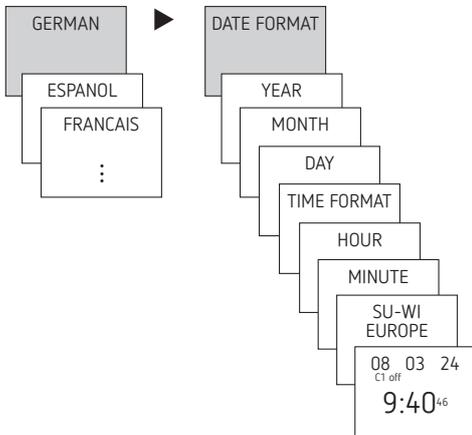
Initial operation

After activating the voltage, press the OK button. You must connect to the time switch within 30 seconds (CONNECT BLUETOOTH).

You can then set your language (see figure).

If you want to set your time switch without Bluetooth, press MENU and follow the instructions on the display.

① Date and time are preset.



- Set language as well as summer/winter time (SU-WI).
- Press any button and follow on-screen instructions (see picture).

Initial operation with the OBELISK top3 app and time update, see 7 on page 9.

6. Settings and functions

The digital time switches can be used to program and switch time switch or astro programs for each channel.

Time switch programs

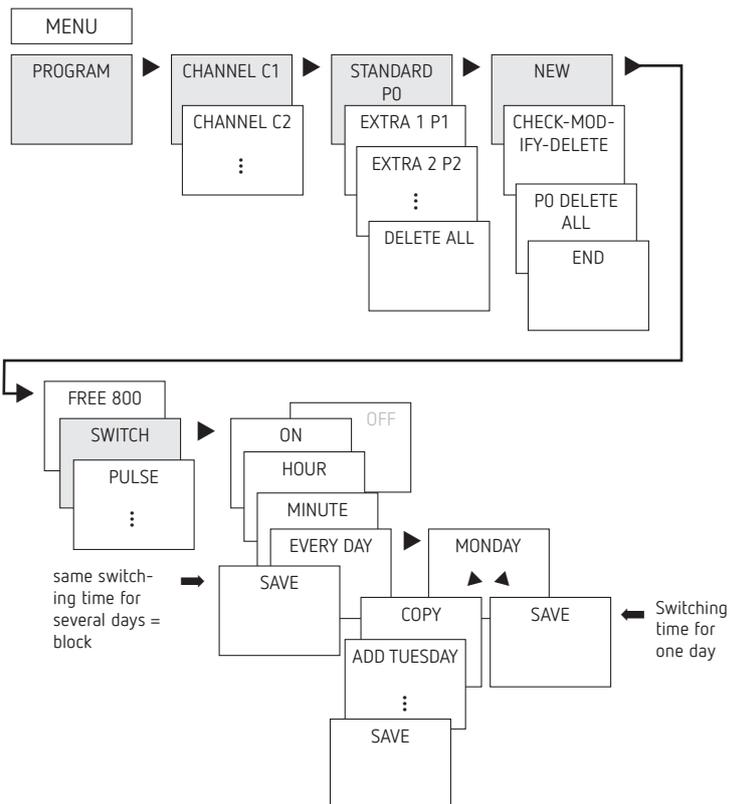
- 1 standard program P0 (weekly program with switching times, pulse and cycle times)
- 16 special programs consisting of: 14 special programs P1-P14 (weekly programs with switching times, pulse and cycle times), with various adjustable date ranges (fixed date range, date depending on Easter, etc.), with special program P15 (permanent on) and special program P16 (permanent off), with adjustable date ranges

Astro programs

For each channel, the astro function can be activated instead of the time switch function.

- 1 astro standard program P0 (with fix on/off times, weekly program)
- 16 special programs consisting of: 14 astro special programs P1-P14 (with fix on/fix off times, weekly program) with various adjustable date ranges (fixed date range etc.), with special program P15 (permanent on) and special program P16 (permanent off) (with adjustable date ranges)

PROGRAM: Programming switching time in standard program



① A switching time always consists of an **On** switching operation and an **OFF** switching operation.

① The **Astro** function consists of On/Off and permanent switching.

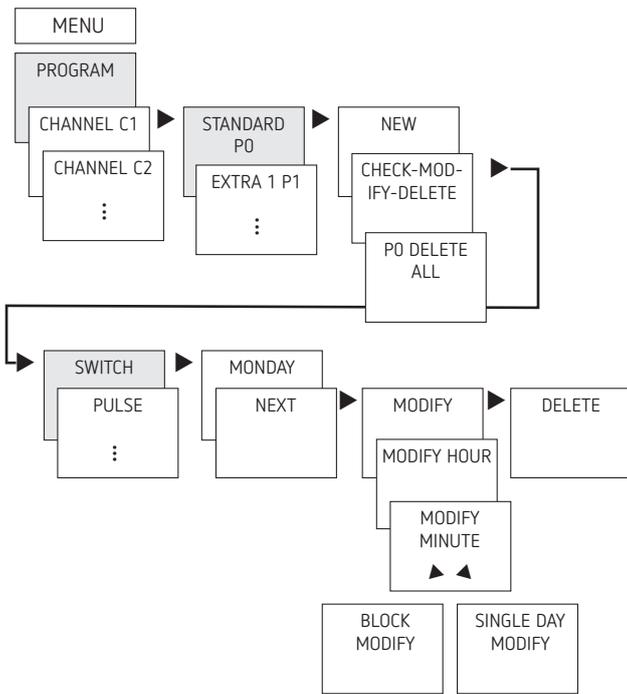
① There are 800 available memory locations.

Example: Switch on sports hall lighting from Mon–Fri, 7:30 to 12:00

- Press MENU.
- Select PROGRAM, confirm with OK.
- Select CHANNEL (C1 to C8), confirm with OK.
- Select STANDARD P0, confirm with OK.
- Select NEW, confirm with OK. FREE 800 is displayed.
- Confirm with OK.
- Select SWITCH, confirm with OK.
- Select ON (for turn-on time) or OFF (for turn-off time), confirm with OK.
- Set desired turn-on time (Mon–Fri, 7:30), confirm with OK. The display shows EVERY DAY.
- Select MONDAY with ► and confirm with OK.
- Select COPY, confirm with OK.
- ADD TUESDAY is displayed, confirm by pressing OK and also confirm the days Wed, Thu, Fri.
- Continue with ► until SAVE is displayed.
- Confirm with OK.

Repeat all steps for the **turn-off time**, however instead of selecting ON ► select OFF and enter 12:00 for hour and minute.

Changing the switching time

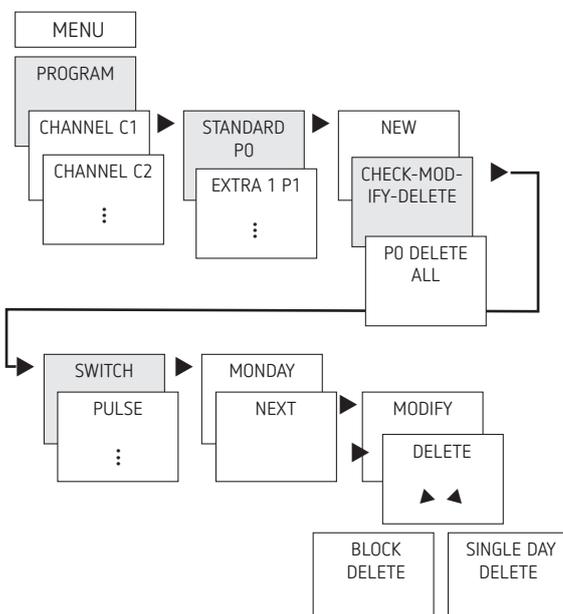


① You can either modify a block, i.e. a switching time copied to several days (e.g. Mon-Fri) or a single switching time.

Modifying individual switching times

- Press MENU.
- Select PROGRAM, confirm with OK.
- Select CHANNEL, confirm with OK.
- Select STANDARD PO, confirm with OK.
- Select CHECK-MODIFY-DELETE, confirm with OK.
- Select SWITCH, confirm with OK. NEXT is displayed.
- With ► MODIFY ► and DELETE will be displayed.
- Confirm MODIFY, then
- CHANGE HOUR, use the + or – buttons to change hour and minute and confirm with OK.
- To change several switching times, select MODIFY BLOCK, confirm with OK, or modify individual days with ►.

Deleting a switching time



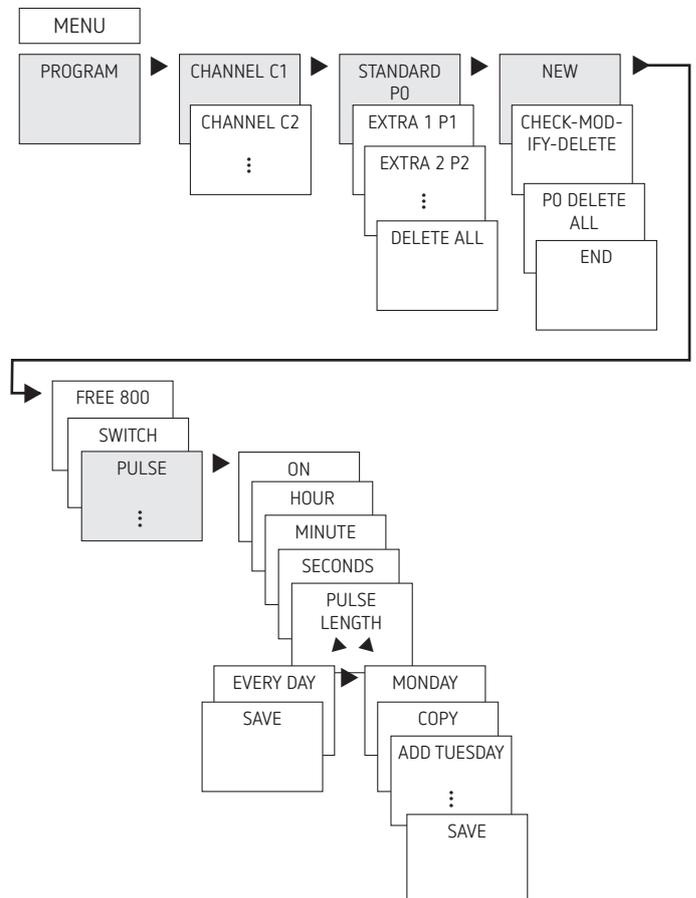
① You can either delete a block, i.e. a switching time copied for several days (e.g. Mon-Fri) or a single switching time.

- Press MENU.
- Select PROGRAM, confirm with OK.
- Select CHANNEL, confirm with OK.
- Select STANDARD PO, confirm with OK.
- ... Select DELETE, confirm with OK.
- Select SWITCH, confirm with OK. A single day is displayed (Mondays etc.).
- Confirm with OK. NEXT is displayed,
- With ► MODIFY ► and DELETE will be displayed.
- Confirm DELETE, it will be displayed
- Select DELETE BLOCK, confirm with OK, or
- With ► DELETE MONDAY etc. individual days can also be deleted.

Pulse programming

A pulse is an event that is repeated weekly and can be switched to the second.

There is an on and an off pulse. Each pulse has a duration (pulse duration 1 s – 1 h) with start and end.



Example: Switch on pause signal on Monday at 8:05 a.m. for 5 s.

- Press MENU.
- Select PROGRAM, confirm with OK.
- Select CHANNEL, confirm with OK.
- Select STANDARD PO, confirm with OK.
- Select NEW, confirm with OK.
- Select PULSE with ►, confirm with OK.
- Select ON, confirm with OK.
- Use the + or – keys to enter hour, minute, second (8:05) and confirm by pressing OK. PULSE DURATION is displayed.

- Use the + or – buttons to enter the duration of the pulse in minutes and seconds (5 sec) and confirm with OK. The display shows EVERY DAY.
- Select MONDAY with ► and confirm with OK.
- Continue with ► until SAVE is displayed.
- Confirm with OK.

Cycle programming

In addition to turn-on and turn-off times (switching time) and short time pulses (pulse), cycle times (cycle) can also be programmed. The pulse length (+ pulse pause) is limited to 17 h, 59 min, 59 s.

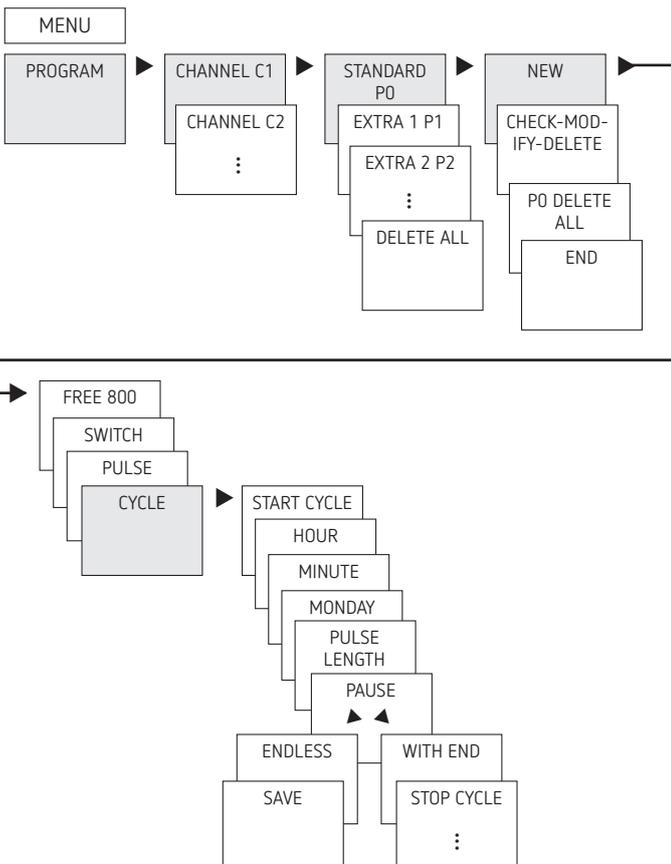
- ① Cycle times are cyclically repetitive time functions such as fan controls, fountains, etc.

Example: Switch on water rinsing Monday from 8:00 to 20:30 every 15 min. for 20 s (8:00:00–8:00:20 On; 8:15:00–8:15:20 On; 8:30:00–8:30:20 On, etc.)

Cycle programming:

- Start cycle: Monday 8:00
- Pulse duration: 20 s
- Pause duration (pause): 14 min and 40 s
- End cycle: Monday 20:30

- ① Observe the maximum number of electrical switching cycles when using the cycle function.



- Press MENU.
- Select PROGRAM, confirm with OK.
- Select CHANNEL, confirm with OK.
- Select STANDARD PO, confirm with OK.
- Select NEW, confirm with OK.
- Select CYCLE with ►, confirm with OK. START CYCLE is displayed, confirm with OK.

- Use the + or – buttons to enter hour, minute, day (8:00 Monday) and confirm with OK.
- Enter PULSE LENGTH (20 s), confirm with OK.
- Enter pause duration PAUSE (14 min and 40 s), confirm with OK. The display shows WITHOUT END.
- Select WITH END with ►, confirm with OK. STOP CYCLE is displayed, confirm with OK.
- Enter end times of the cycle (20:30) and confirm with OK.

PROGRAM: Program switching time in special program 1–16

The rule for special programs is: the higher the number, the higher the priority. Special program 16 has the highest, special program 1 the lowest priority.

Each special program has an arbitrary number of date ranges available.

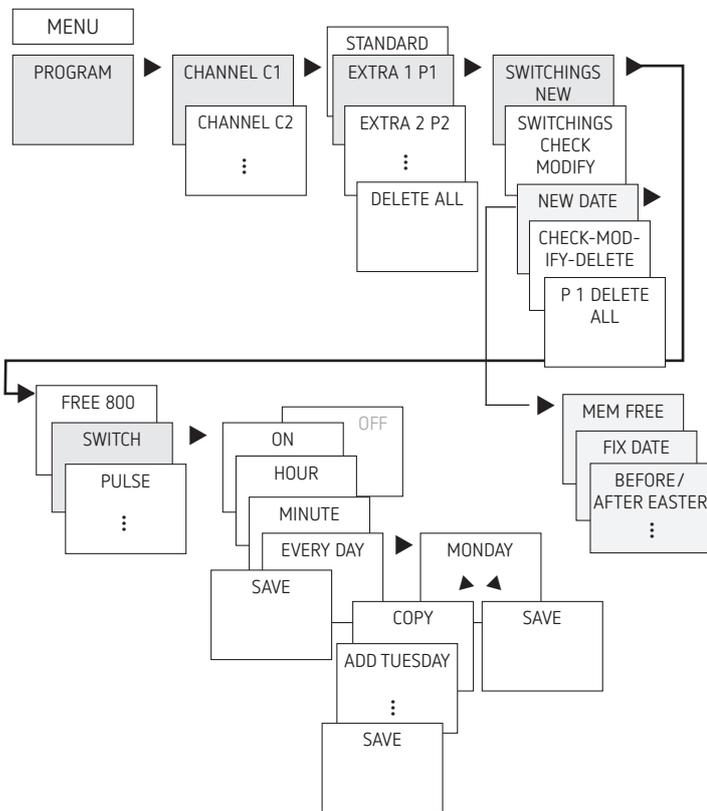
- ① A special program **only becomes active** when at least one date range has been set and it is not superimposed by another special program with a higher priority during this period.

At the start and end of each date range the hour can also be entered to ensure that the changeover to the respective special program occurs at each full hour.

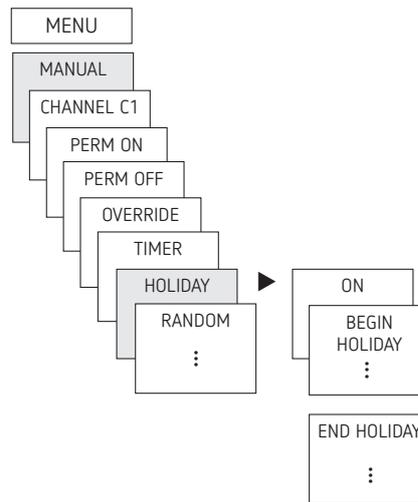
The following **date ranges** can be set in parallel:

- Fix date (once)
- Fix date every year (repeating)
- Easter rule, or the Orthodox Church rule (81 days before ... 174 days after Easter) and all Christian/religious holidays (Whitsun, Corpus Christi etc.)
- Chinese New Year (20 days before ... 20 days after the Chinese New Year)
- Date with serial pattern (date series): Start and end are defined and the start is repeated after an adjustable number of days (after 200 days at the latest)
- Weekday rule (e.g. every 3rd Wednesday in September)

- ① An extra date range must be assigned to the special program for it to become active.



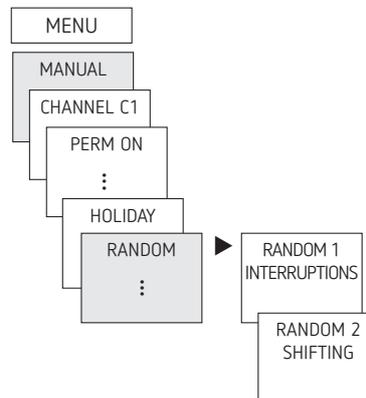
MANUAL: Setting the holiday function



- Press MENU.
- Select MANUAL, confirm with OK.
- Select CHANNEL, confirm with OK.
- Select HOLIDAY, confirm with OK.
- Select ON, confirm with OK.
- Select START HOLIDAY, confirm with OK.
- Enter YEAR, MONTH, DAY, HOUR, confirm with OK.
- Select END HOLIDAY, confirm with OK.
- Enter YEAR, MONTH, DAY, HOUR, confirm with OK.

Setting the random function

Random 1: Interruptions → several random turn-ons and turn-offs during a programmed switch-on phase.
 Random 2: → random shifting of the turn-on and turn-off time



- Press MENU.
- Select PROGRAM, confirm with OK.
- Select CHANNEL (C1 to C8), confirm with OK.
- Select EXTRA 1 P1, confirm with OK.
- Select SWITCHINGS NEW, confirm with OK. The display shows MEM FREE XXX.
- Confirm with OK.
- Select SWITCH, confirm with OK.
- Select ON (for turn-on time) or OFF (for turn-off time), confirm with OK.
- Set desired turn-on time (Mon–Fri, 7:30), confirm with OK. The display shows EVERY DAY.
- Select MONDAY with ► and confirm with OK.
- Select COPY, confirm with OK.
- ADD TUESDAY is displayed, confirm by pressing OK and also confirm the days Wed, Thu, Fri by pressing OK.
- Continue with ► until SAVE is displayed.
- Confirm with OK.

Then enter the date range via **NEW DATE**.

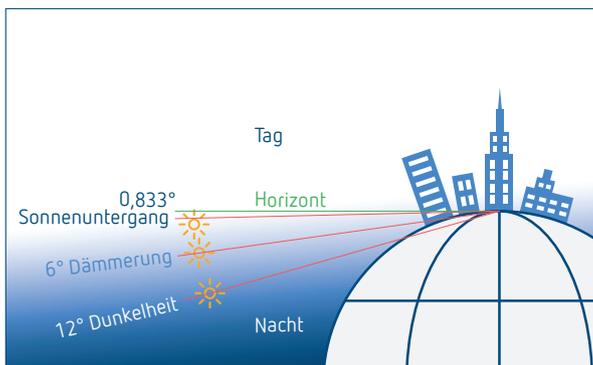
OPTIONS: ASTRO

In the standard setting, a time switch with an astro program switches on at sunset and off at sunrise. Therefore, in most applications, only one night switch-off (e.g. from 22:00 to 06:00) has to be programmed – and, if needed, to be copied to all weekdays.

Astro programs can be used for precise switching of connected consumers based on sunrise and sunset. They have an additional astro pulse, which can be used for roller blinds and blinds control.

Furthermore, the time switches offer a twilight range in three increments:

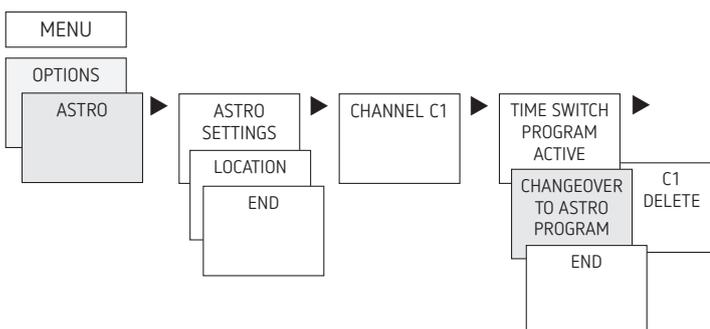
- Sunset (civil twilight)
- Twilight (nautical twilight)
- Darkness (astronomical twilight)



① When a time switch program is active → Switching to astro program ...

Querying/changing astro times

After switching to the astro program, astro times, offset, astro mode and position (location information) can be queried or changed.



The ASTRO menu includes:

- **Astro times**

Display of the astro times (including the offset) for the current day

- **Offset**

The offset (correction value) can be used to shift the calculated astrotimes 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

- **Astro mode**

- 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)

- **Astro pulse**

- Evenings and mornings; suitable for roller blinds and blinds control

- **Astro time**

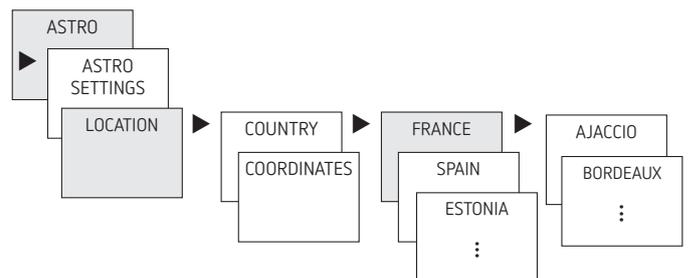
3 twilight ranges can be set:

- Sunset (civil twilight): Sunset is the moment in which the upper edge of the sun disappears behind the horizon
- Twilight (nautical twilight): Twilight is when the centre of the sun is 6° below the horizon
- Darkness (astronomical twilight): The darkness setting, technically correct astronomical twilight, is when the centre of the sun is 12° below the horizon. Stars can be seen

- **Position**

- Setting the location by selecting a town/city or via coordinates (latitude/longitude, time zone).

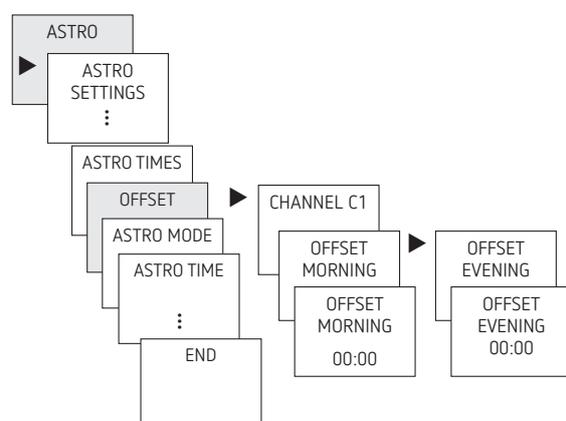
Change position



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

➤ Press MENU (see picture).

Setting the offset function



➤ Press MENU.

➤ Select ASTRO, confirm with OK.

➤ Select OFFSET, confirm with OK.

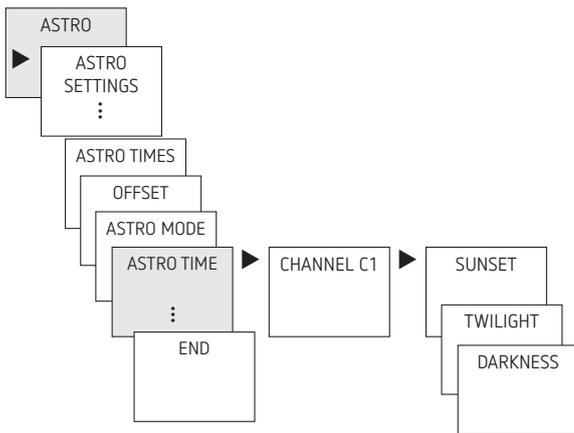
➤ Select CHANNEL, confirm with OK.

➤ Select OFFSET MORNING or OFFSET EVENING and press OK to confirm.

➤ Set the time and press OK to confirm.

Setting individual twilight ranges

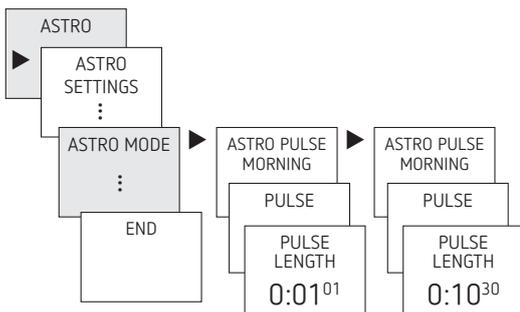
In the ASTRO menu → Astro time, 3 twilight ranges can be set.



- Press MENU.
- Select ASTRO, confirm with OK.
- Select ASTRO TIME, confirm with OK.
- Select CHANNEL, confirm with OK.
- Select SUNSET, TWILIGHT or DARKNESS, confirm with OK.

Setting the astro pulse

Suited for blinds and roller blind control, etc.



- Press MENU.
- Select ASTRO, confirm with OK.
- Select ASTRO MODE, confirm with OK.
- Select CHANNEL, confirm with OK.
- Select ASTRO PULSE, confirm with OK.
 - EVENINGS AND MORNINGS, EVENINGS, etc. appears.
- Select the desired time, confirm with OK.
- Then, enter the PULSE LENGTH.

Hour counter

The operating hours of the channel 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.

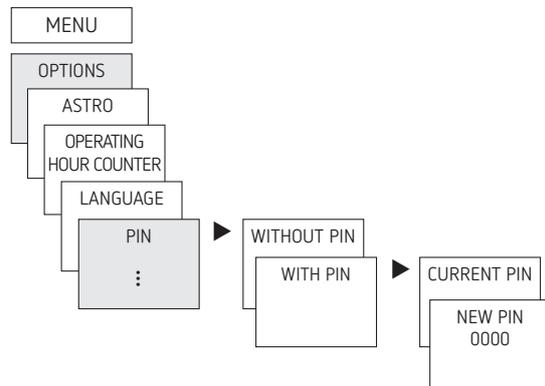
Example: Replace a lamp after 5,000 h.

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

PIN code

The PIN code is also set in OPTIONS.

- ❶ If you have forgotten your PIN, please call the Theben Hotline.
- ❷ Have the serial number ready.



Earth Hour

The Earth hour is also set in OPTIONS. In the OBELISK top3 app and the OBELISK top3 PC software, you will find the menu item under "Device settings".

WWF Earth Hour is a global event in which people all over the world switch off their lights on the same day from 8.30 to 9.30 pm local time.

Earth Hour data pre-programmed until 2044:

Sat. 22/03/2025	Sat. 20/03/2032	Sat. 26/03/2039
Sat. 28/03/2026	Sat. 26/03/2033	Sat. 24/03/2040
Sat. 20/03/2027	Sat. 18/03/2034	Sat. 30/03/2041
Sat. 25/03/2028	Sat. 31/03/2035	Sat. 29/03/2042
Sat. 31/03/2029	Sat. 29/03/2036	Sat. 21/03/2043
Sat. 30/03/2030	Sat. 28/03/2037	Sat. 26/03/2044
Sat. 29/03/2031	Sat. 27/03/2038	

Priorities of the individual programs

- Prio 1 Permanent switching
- Prio 2 Holiday program
- Prio 3 Special program via object
- Prio 4 Special program 1-16 (the higher the number, the higher the priority)
- Prio 5 Earth Hour
- Prio 6 Manual switching (activation)
- Prio 7 Cycle
 - Pulse
 - Random
 - Standard Off before Standard On
- Prio 8 Standard program
- Prio 9 Manual switching (deactivation)

Bluetooth

The Bluetooth function can be activated or deactivated here.
Menu → OPTIONS → BLUETOOTH → activate/deactivate

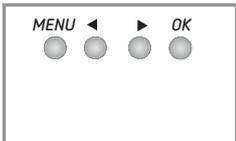
Setting manual switching or permanent switching

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

- Manual switching:
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.

Resetting the time switch

➤ Press the 4 buttons simultaneously.



→ You can choose between KEEP PROGRAM and DELETE PROGRAMS.

Language, time format, Earth Hour etc. are retained, date and time are deleted.

7. OBELISK top3 app

Programming the time switch via app or PC software

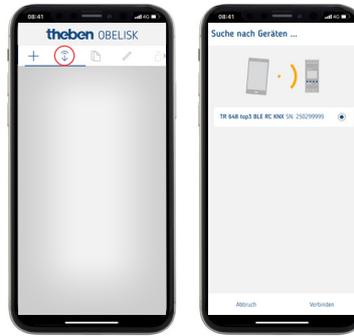
The TR 648 top3 RC KNX device can be programmed using an app (for Android, iOS or PC). Communication takes place via Bluetooth. Switching programs are transferred and direct switch commands are sent to the device.

- ① As soon as a smartphone, tablet or PC is connected to the time switch, time/date will be synchronised with that of the end device.

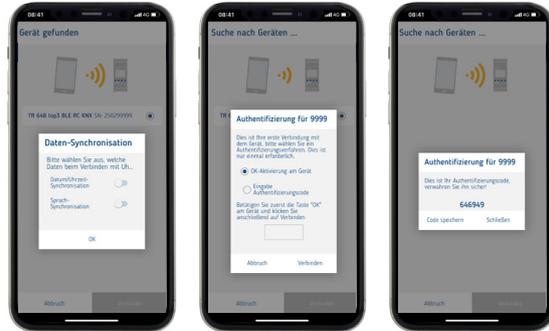
➤ Download the OBELISK top3 app from the App Store or Google Play Store



- or download the PC software from the Theben homepage.
<https://www.theben.de/de/tr-648-top3-rc-knx-6489130>
- Open the app and select the desired function by pressing , or .



➤ Press "Connect".



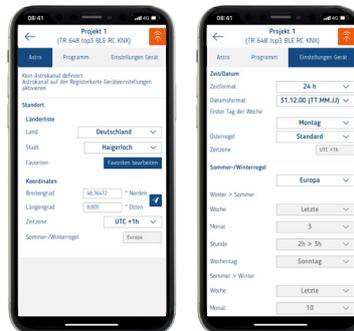
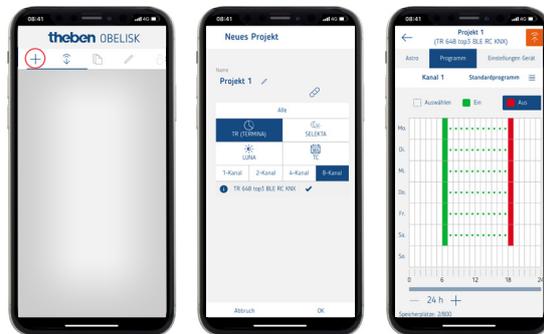
➤ Press OK on the time switch.

→ The display shows CONNECT BLUETOOTH.

➤ Press "Close" in the app within 30 s.

→ BLUETOOTH ACTIVE appears on the display of the time switch.

A new project can now be created with, for example, switching times in the standard program, astro times and settings on the device, etc.



PC software OBELISK top3



Alternative programming with memory card OBELISK

With the OBELISK top2/3 (9070404) and OBELISK top3 (9070130) memory card, you can copy, transfer and execute **only** programmed switching times (time zone, location) to the time switch.

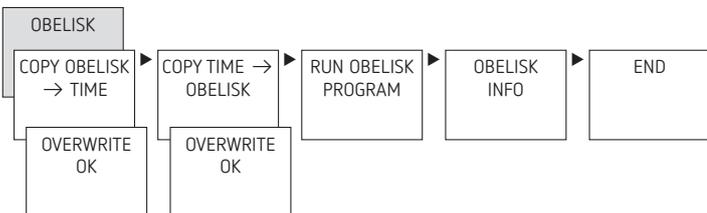
- ① Only programmable with the new OBELISK top2/3 PC set (9070409).



- ① If an ot2 file is copied from a predecessor top2 device to the time switch, the new settings of the top3 devices such as Earth Hour, twilight mode etc. are set to the default value, as these were not previously available. If only switching programs are copied, the settings are not changed and are retained.

To activate/deactivate the Bluetooth function

- Menu → OPTIONS → BLUETOOTH → activate/deactivate.



Copying OBELISK → TIME

This copies the switching program and optionally all time switch settings (e.g. time format, etc.) from the memory card to the time switch.

Copying TIME → OBELISK

This copies all switching programs and settings from the time switch to the memory card.

Running the 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 reactivated.

8. Technical data

KNX bus voltage	21 – 32 V DC
Current consumption KNX bus	< 10 mA
Operating voltage	110 – 240 V AC
Current consumption	min. 4 mA, max. 17 mA
Frequency	50 – 60 Hz
Standby power	0.45 W
Shortest switching time (with pulse)	1 s
Switching accuracy	to the second
Protection rating	IP 20 in accordance with EN 60730-1
Protection class	II in accordance with EN 60730-1 subject to designated installation
Mode of operation	type 1 STU
Power reserve	10 years at 20 °C (without BLE)
Time accuracy (typical)	≤ 0.25 s/day (25 °C)
Ambient temperature	– 5 °C ... 45 °C The time switch display is only fully functional at temperatures from +5 °C ... +55 °C.
Rated impulse voltage	4 kV
Pollution degree	2
Software class	A
Data bus cable length with 0.8 mm ²	max. 50 m
BLE Radio frequency/transmission power Free field range	BLE 2402 ... 2480 MHz/ – 4.4 dBm 40 m

Theben AG herewith declares that this type of radio installation complies with Directive 2014/53/EU. The complete text of the EU Declaration of Conformity is available at the following Internet address:
www.theben.de/red-konformitaet

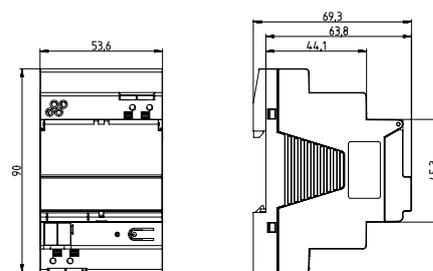
Cleaning and service

- Only use a dry, soft cloth to clean the device surface.
- Do not use any cleaning agents or solvents.

Disposal

 Dispose of the device separately from domestic waste at an official collection point.

9. Dimensions diagrams



10. Contact

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