

EN Digital twilight switch

LUNA 121 top3 RC
1210130/1210230

LUNA 122 top3 RC
1220130/1220230



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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)

2. Proper use

- The digital twilight switch is used for lighting equipment (streets), external stairways, 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

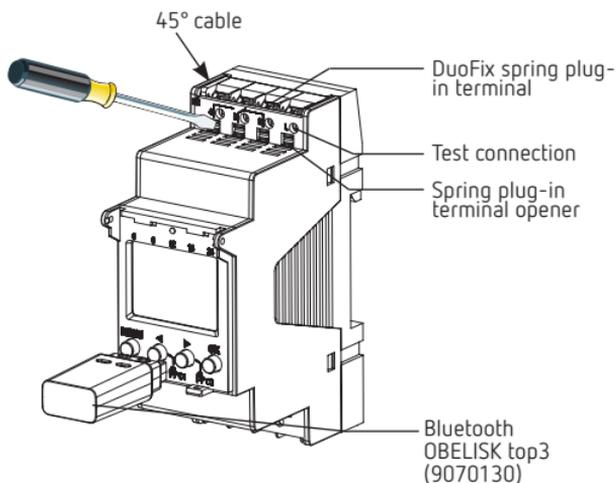
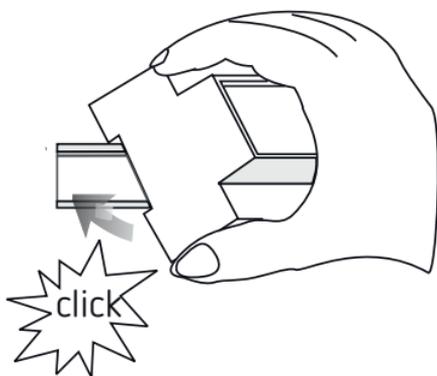
Mounting the time switch



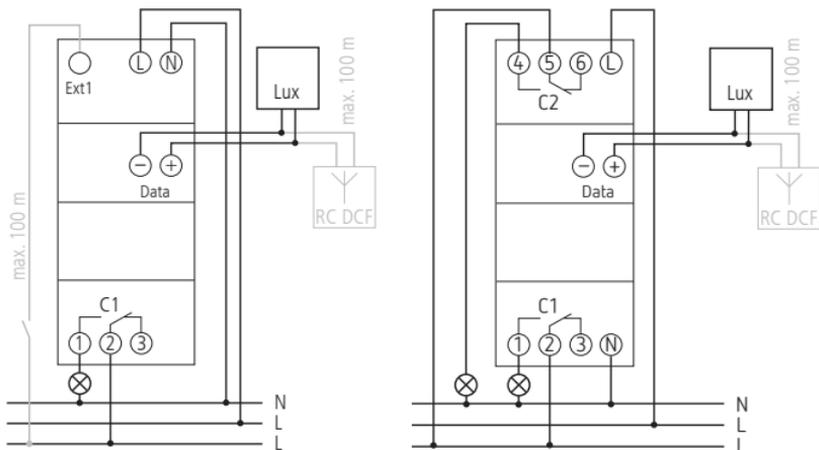
WARNING

Danger of death through electric shock or fire!

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



- Mount on DIN top hat rails (as defined in EN 60715)
- Switched voltage-free
- 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 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

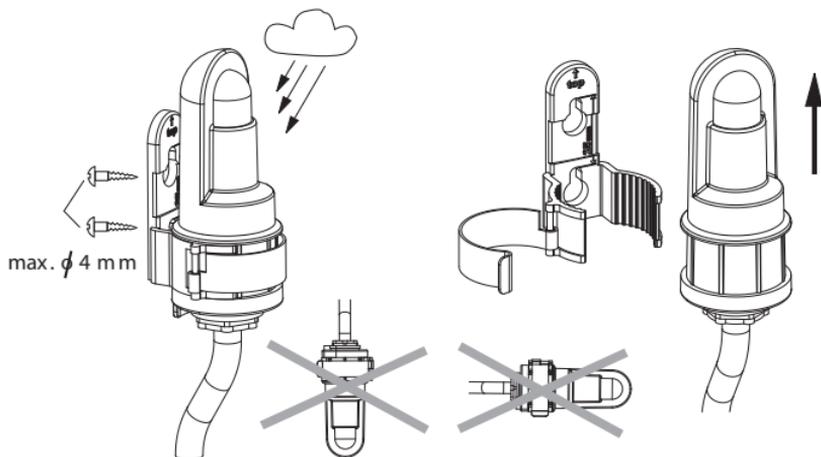
- Use the screwdriver to push the load line connection opener downwards

Connection/installation of light sensor

- ⚠ Take length of connection cable into account: max. 100 m (2 x 1.5 mm²), max. 50 m (2 x 0.75 mm²)
- ⚠ Avoid running sensor wiring parallel to mains power cables
- Ensure correct polarity. Disconnect power source

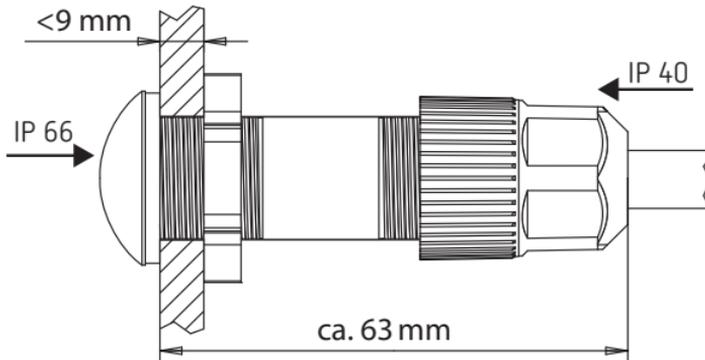
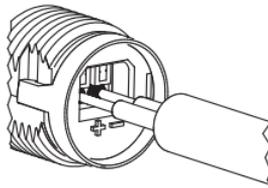
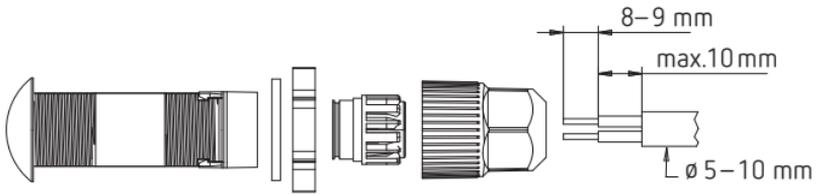
Mounting light sensor 9070415

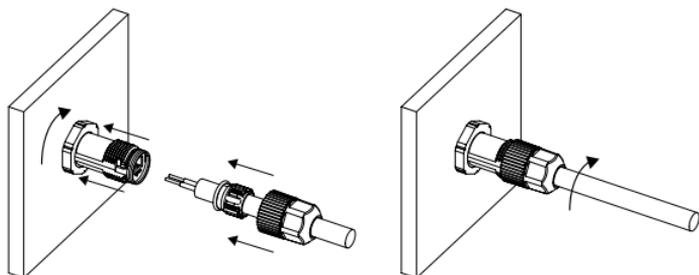
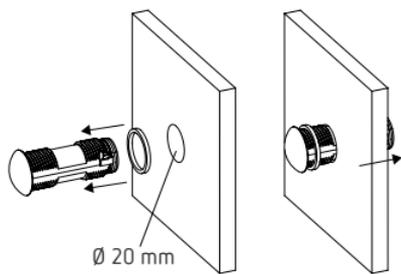
- Mounting light sensor: 0.5-2.5 mm², strip cable by 9 mm (max. 10 mm)



Installing light sensor 9070456

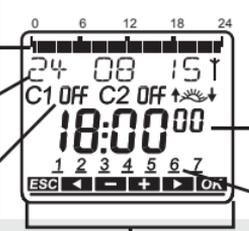
- ▶ Installing light sensor: 0.25-1.5 mm², strip cable by 8 mm (max. 9 mm)





4. Device description

Display & buttons



Programmed switching times

Date display

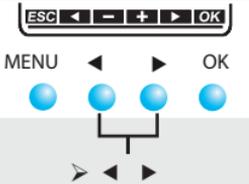
Channel status
C1, C2
ON = On
OFF = Off

Time display

Days of the week
from 1 to 7

Display of the active buttons
with the relevant function

The screenshot shows a digital display with a 24-hour bar at the top. The main display shows '24 08 15' (date), 'C1 OFF C2 OFF' (channel status), and '18:00' (time). Below the time are buttons for 'ESC', left arrow, right arrow, and 'OK'. A legend below the display explains the channel status and button functions.



MENU

OK

Options are displayed

- Activate display
- Open menu
- Cancel menu
- ESC (leave menu)
- Save selection
- Confirm selection

The diagram shows four buttons: MENU, left arrow, right arrow, and OK. A bracket groups the left and right arrow buttons, with a note 'Options are displayed' below it. A legend to the right lists the functions for each button.

Operating instructions

1. Read text line
text/symbol represents
query



2. Make a decision



YES
Confirmation

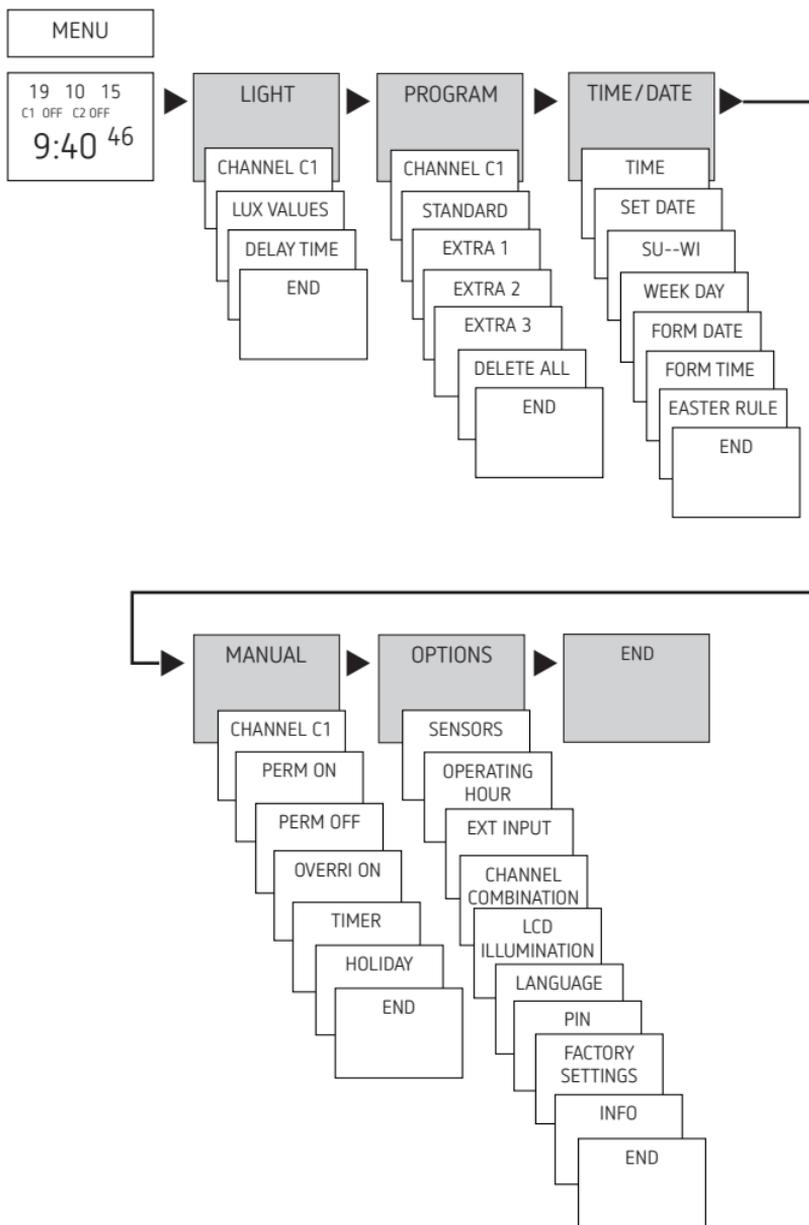
Press
OK

NO
Modify/
Change

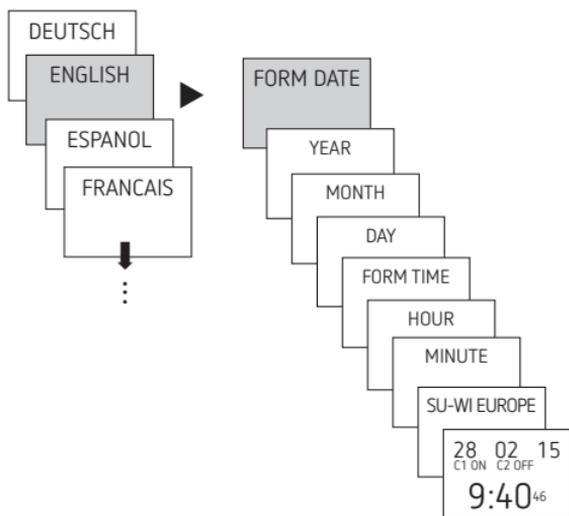
Press
◀ ▶



Overview of navigation menu



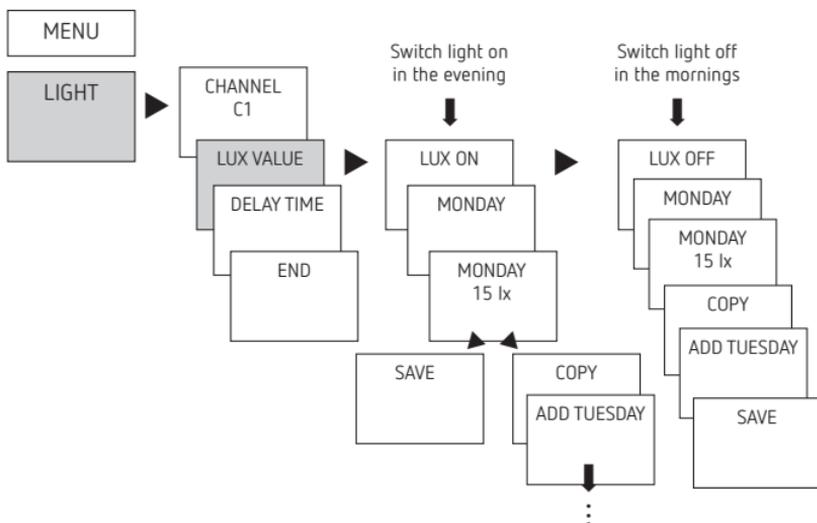
Initial operation



- Set language, date, time as well as summer /winter time (SU-WI)
- Press any button and display follows on screen (see figure)
 - ① If all settings are performed, the screen alternately shows the automatic display and READING
 - ① If a sensor is connected, the measured lux value appears on screen (only during mains operation).

5. Settings and functions

Set lux values



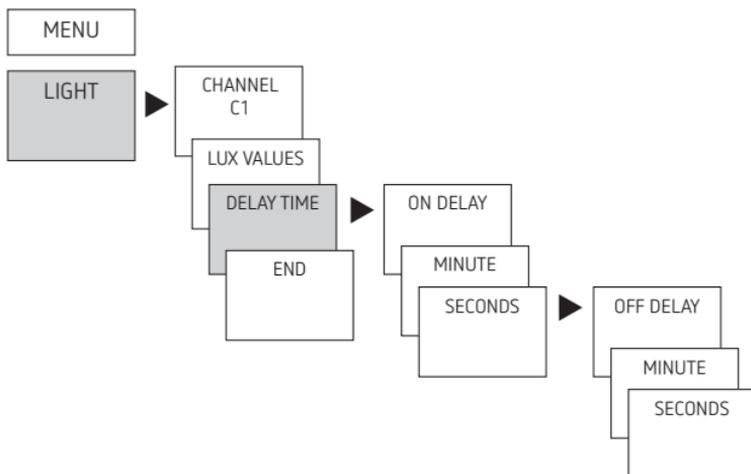
① The device has been preset at 15 lx for the switch on/switch off level

- Press MENU
- Select LIGHT and press OK to confirm
- Select CHANNEL C1 or C2, confirm with OK
- Select LUX VALUE and press OK to confirm
- Select LUX ON and press OK to confirm
- MONDAY is displayed, confirm with OK
- Set LUX VALUE, confirm with OK
- Select COPY or SAVE, confirm with OK
- To save press ► and press OK to confirm
- To copy press OK

Typical brightness values

Daylight (bright)	80.000 lx
Office accommodation	500 lx
Hallways and stairs	100 – 150 lx
Street lighting	15 lx
Full moon	ca. 0,3 lx

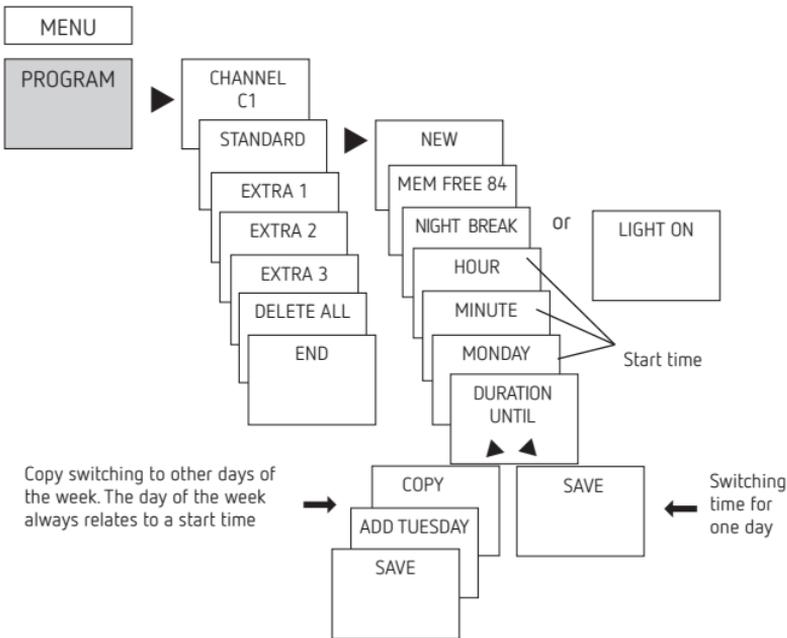
Set delay



① An on/off delay of 1 minute is preset to avoid faulty operation caused by lightning, car headlights etc. When the delay ends the channel status will flash ON/OFF.

- Press MENU
- Select LIGHT and press OK to confirm
- Select CHANNEL C1 or C2, confirm with OK
- Select DELAY TIME, confirm with OK
- Select ON DELAY, confirm with OK
- MODIFY HOUR, use the + or – buttons to change hour and minute and confirm with OK.

Program switching time in standard program



① A switching time always consists of a start time and an end time

① There are 84 memory cells available

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

- Press MENU
- Select PROGRAM and press OK to confirm
- Select CHANNEL C1 or C2, confirm with OK
- Select STANDARD, confirm with OK

- Select NEW, confirm with OK
- Select NIGHT BREAK or LIGHT ON, confirm with OK
- Set required turn-on time (Mo–Fr, 7:30), confirm with OK
- Set DURATION UNTIL, confirm with OK
- Select COPY, confirm with OK
- ADD TUESDAY is displayed, confirm by pressing OK and also confirm the days We, Th, Fr by pressing OK.
- Continue with ► until SAVE is displayed.
- Confirm by pressing OK.

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



Setting special programs

- The LUNA 121 top3 RC and LUNA 122 top3 RC devices feature 3 special programs, which can be used for calendar-dependent switching.
- Each special program can be activated over one or several date ranges.
- There are 3 types of date ranges:
 - Fixed date range:
e.g. start time on 02.04.2018 at 16:00
end time on 24.04.2018 at 10:00
 - Annually recurring date range:
e.g. Christmas:
start time on 24.12 at 18:00 each year
end time on 26.12 at 23:00 each year
 - Easter-dependent date range:
e.g. Whit Sunday and Whit Monday:
start time: 49 days after Easter at 00:00
end time each year: 51 days after Easter at 00:00, each year

- ① The public holiday set can be selected via the app or the OBELISK software. The date ranges are created automatically.
- ① 24:00 cannot be entered. 0:00 on the following day must be programmed.

Set Easter rule

- ① The EASTER RULE can be set using menu item TIME/DATE

Easter holiday dates in Germany

	Days before/after Easter Sunday	
Public holiday	Start	End
Monday before Lent	- 48 days 0:00	- 47 days 0:00
Good Friday	- 2 days 0:00	- 1 day 0:00
Easter Monday	+ 1 day 0:00	+ 2 days 0:00
Ascension	+ 39 days 0:00	+ 40 days 0:00
Whit Monday	+ 50 days 0:00	+ 51 days 0:00
Corpus Christi	+ 60 days 0:00	+ 61 days 0:00

- Special program 1
 - On and off lux values
 - Optional 1x night interruption
 - Optional 1x daytime switch-on
 - Active in the programmed date ranges

Example: The standard program switches on the street lighting depending on the lux values. A night interruption is programmed from 23:00 to 04:00. Special program 1 is active in the date range from 30 April, 12:00 to 1 May, 12:00. Since no night interruption is programmed, the street lighting will remain on all night.



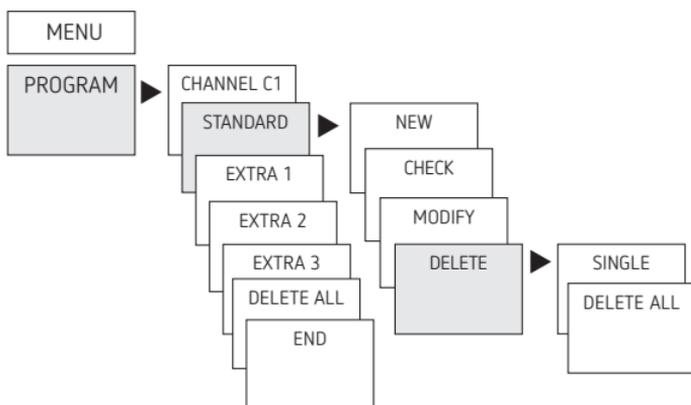
- Special program 2
 - Permanent ON
 - Always on during the programmed date ranges

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 17.04.2018, 9:00 to 24.04.2018, 18:00.
- Special program 3
 - Permanent OFF
 - Always off during the programmed date ranges

Example: The standard program switches on the car park lighting depending on the set lux values. The special program does not switch on the car park lighting on 14 July, from 00:00 to 15 July, 04:00.



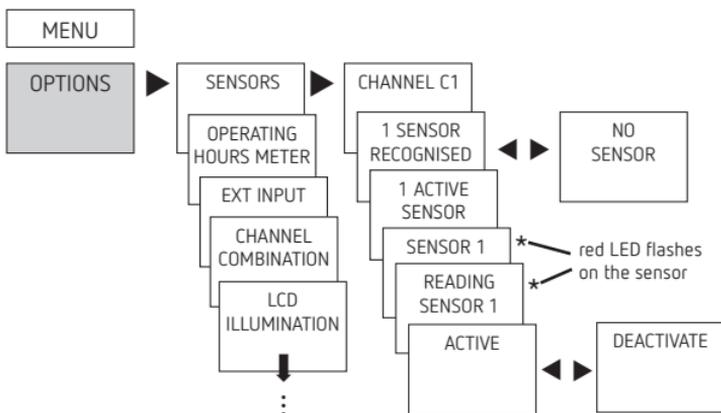
Delete switching program



- Press MENU
- Select PROGRAM and confirm with OK
- Select CHANNEL C1 or C2, confirm with OK
- Select STANDARD; EXTRA 1 or EXTRA 2, confirm with OK
- Select DELETE, confirm with OK
- Select SINGLE or DELETE ALL, confirm with OK

Allocate sensors

① The SENSORS are allocated in the menu under OPTIONS



➤ Press MENU (see fig.)

Connection options:

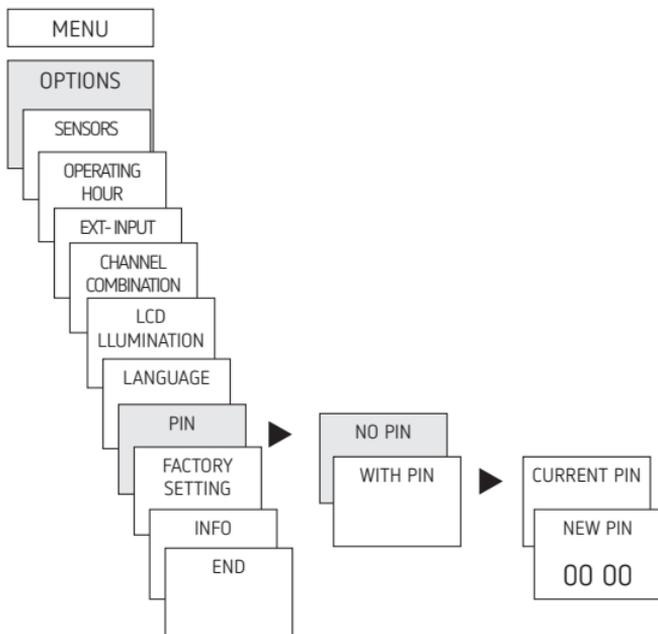
- 1 LUNA + max. 4 light sensors
- 1 LUNA + max. 3 light sensors + 1 DCF antenna
- max. 10 LUNA
- Σ max. 16 devices (LUNA + light sensors)

① **Presetting:** all connected sensors are active for all channels. The sensor that sends the lowest lux value is active

Activating PIN code

The PIN code is set in OPTIONS via the menu.

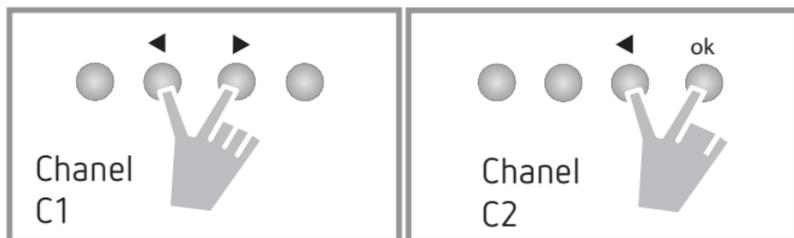
- ① If you have forgotten your PIN, call the Theben Hotline.
- ① Have the serial number ready



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 and switching thresholds 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

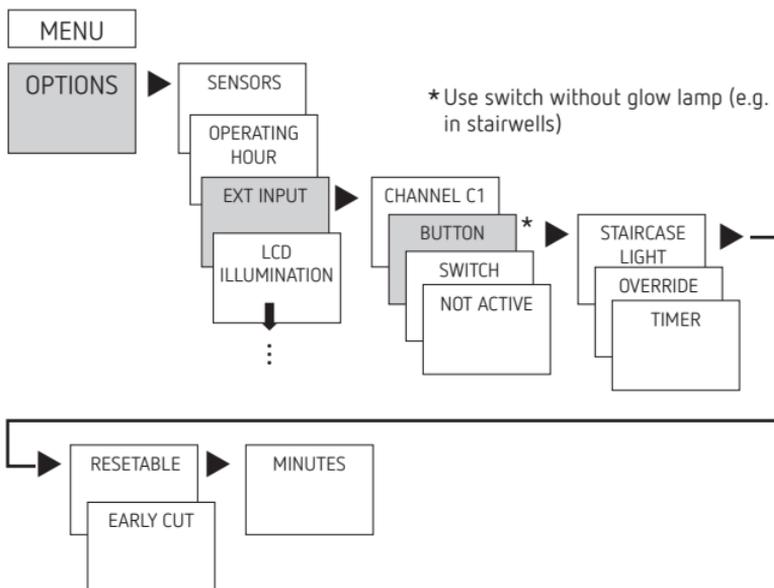
Set external input (only with LUNA 121 top3 RC)

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

3 sub-menus can be selected: Inactive, push button (function), switch (function)

- NOT ACTIVE: The external input has no function
- BUTTON: Manual (manual control), Timer (countdown timer) are selectable
- SWITCH: PERM ON, PERM OFF and LUX ONLY 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.

① Additional power unit required for GPS if only one device is connected to the antenna.

① Refer to the operating instructions when connecting a GPS antenna (9070610).

Minimum number of participants needed to operate the GPS antenna:

- 2 x weekly timer TR 611 top3 RC, SELEKTA 171 top3 RC LUNA 121 – 122 top3 RC each with 50 mA feed, or
- 1 x weekly timer with 50 mA feed plus 1 x top2 GPS power unit (9070892) with 50 mA feed



Setting channel lock (only with LUNA 122 top3 RC)

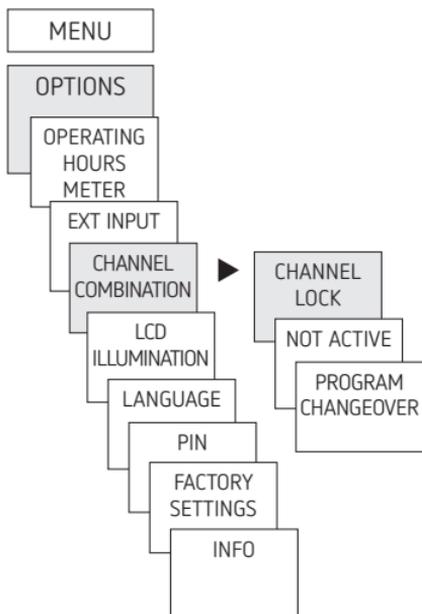
There are situations where two channels must not be switched at the same time!

The channels can be interlocked in this case.

- ① The channel lock prevents both channels from switching on at the same time.

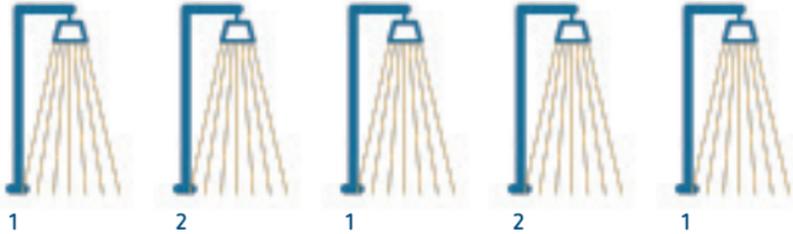
If a channel is already switched on, the second channel will not switch on until the first channel is switched off and a waiting time of 1 s has passed.

If both channels are switched on at the same time, channel 1 has priority.

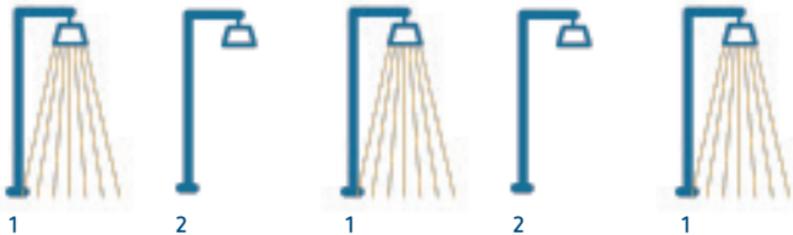


Channel combination

The channel combination reduces maintenance for wear to the lamps and also allows energy to be saved.



Astronomical switch-on at sunset



At a defined time, switch off the second channel to save energy and retain basic lighting.



Each week/day, change the channel that is switched off to use the consumers evenly.



Program changeover (LUNA 122 top3 RC only)

The program changeover function is mainly used for street lighting. Every second lamp is often switched off at night between 23:00 and 05:00. The lamps will therefore not wear out at the same time. If program changeover is used to switch the program from channel 1 (C1) to channel 2 (C2) every other week however, the lamps will be used evenly. Program changeover can be set to every other day or every other week.

- Every day: time for changeover required
- Weekly: day of the week (Monday – Sunday) and time for changeover required

Once the program changeover function has been activated, the programs for channel 1 and channel 2 are switched on a daily or weekly basis (only the switch programs which were entered under PROGRAMS, not the holiday program, timer, etc.).

Every day:

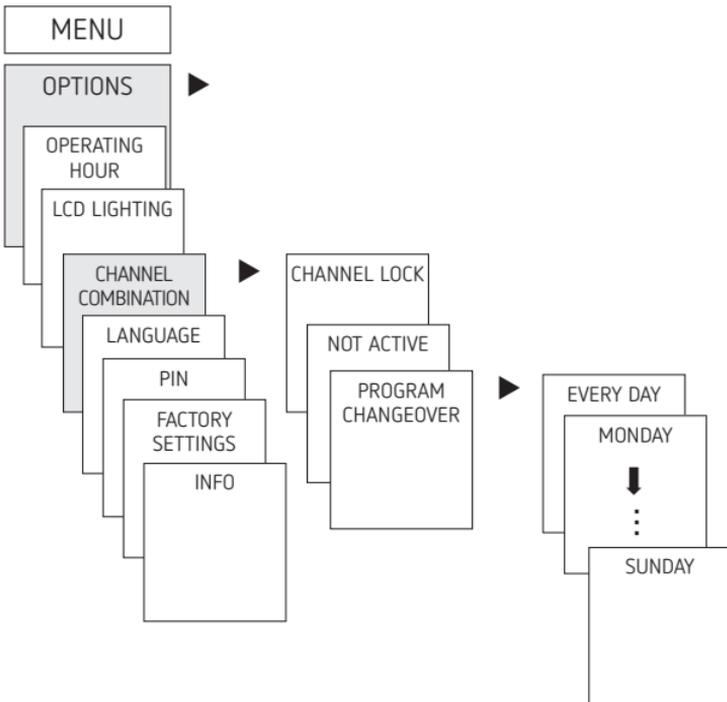
Only the hour that the changeover will take place can be set. The days of the year are counted starting with 1 on 1 January and are assigned as follows:

- Odd day number and time before the hour of changeover → normal operation
- Odd day number and time the same or after the hour of changeover → program switches from C1 to C2
- Even day number and time before the hour of changeover → program switches from C1 to C2
- Even day number and time the same or after the hour of changeover → normal operation



Weekly:

- The day of the week and the hour of changeover are set (start time is Sunday at 12:00). The calendar weeks are numbered in accordance with ISO 8601. The following assignments are made:
- Odd calendar week and in the week before the changeover time → normal operation
- Odd calendar week and in the week after the changeover time → program switches from C1 to C2
- Even calendar week and in the week before the changeover time → program switches from C1 to C2
- Even calendar week and in the week after the changeover time → normal operation



If program changeover is selected, the day of the week or EVERY DAY can be selected and the switchover hour must then be entered (only full hours can be entered). Finally, the system returns to CHANNEL COMBINATION.

Hour counter

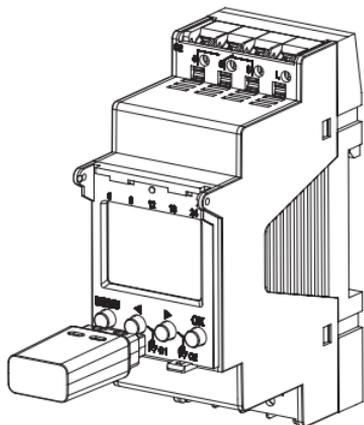
The operating hours of the channel (relay) are displayed and deleted in the OPTIONS menu. If the number of operating hours exceeds the value set in the Service menu, SERVICE will appear in the display.

Example: Replace a lamp after after 5,000 h.

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

Using Bluetooth OBELISK top3

All functions can also be transferred to the device using the Bluetooth OBELISK top3 memory card (9070130).



Copying OBELISK → LUNA

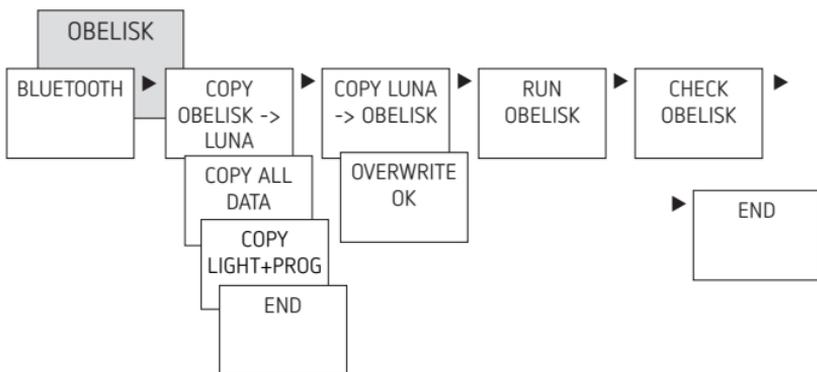
Copies the switch program and optionally all twilight switch settings (e.g. external input, time format, etc.) from the memory card to the twilight switch.

Copying LUNA → OBELISK

Copies all switch programs and twilight switch settings to the memory card.

Starting OBELISK program

Applies the thresholds and switching times that are programmed on the memory card and executes them. As soon as the memory card is removed, the switching times of the twilight switch are re-activated.



Connecting the twilight switch, Bluetooth OBELISK top3 and smartphone (via app)

The devices in the top3 range can be programmed using an app (for Android, iOS) on a mobile end device. Communication takes place via Bluetooth OBELISK top3. Switching programs are transferred and direct switch commands are sent to the device.

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



ⓘ Bluetooth connection only possible in automatic mode, not in manual mode like OPTIONS, etc.

- Open the app and activate using one of the 3 commands, by pressing „Download“ , „Manual command“  or „Upload“ 
→ Device/device list appears on the display.



- Press „Connect“



- For the twilight switch, press OK
 - The display shows BLUETOOTH ACTIVE
- Press „Connect“ in the app within 30 s



Now, for example, projects can be created and uploaded.



Restarting the twilight switch

- ▶ Press the 4 buttons simultaneously
→ You can choose between KEEP PROGRAM and DELETE PROGRAM



6. Technical data

Operating voltage:	110–230 V AC, +10 % / –15 %
Frequency:	50–60 Hz
Brightness range:	1–99,000 lx
On/off switch delay:	0–59 min
Standby:	0,8 W
Switch output:	Switching of any external conductor is permitted
Contact:	μ -contact, two way switch
Max. switching capacity:	16 A (at 250 V, $\cos \varphi = 1$)
Switching capacity:	10 A (at 250 V, $\cos \varphi = 0.6$)
Min. switching capacity:	10 mA/230 V AC 100 mA/24 V AC/DC
Power reserve:	10 years
Shortest delay time	1 s
Switching accuracy:	To the second
Software:	Class A
Rated impulse voltage:	4 kV
Pollution degree:	2
Glow lamp load:	2600 W
Halogen lamp load:	2600 W
Fluorescent lamps KVG: uncorrected:	2600 VA
series-corrected:	2600 VA
parallel-corrected:	1300 VA (130 μ F)
Fluorescent lamps (EVb):	1100 W
LED lamps (< 2 W):	50 W
LED-lamps (> 2 W):	600 W
Permissible ambient temperature:	–25 °C ... +55 °C, –40 °C ... +70 °C (sensor)
Protection class:	II (light sensors III) if correctly mounted



Bluetooth OBELISK top3: – Protection rating: – Temperature: – Range:	IP 40 – 30 °C ... +55 °C 15 m on open air test site
Protection rating: device Mounted light sensor Installation light sensor	IP 20 IP 55 IP 66 (frontside, when installed) IP 40 (backside)

① The twilight switch display is only fully functional at temperatures from +5 °C to +55 °C.



7. Contact

Theben AG
Hohenbergstr. 32
72401 Haigerloch
GERMANY
Tel. +49 7474 692-0
Fax +49 7474 692-150

Hotline

Tel. +49 7474 692-369
hotline@theben.de

Addresses, telephone numbers etc.
www.theben.de