# theben

307528 01

EN Digital twilight switch

## LUNA 111 top3 AL, EL
1110130/1110230

## LUNA 112 top3 AL, EL
1120130, 1120230

# 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
- Sensor is installed in the open-air
- Interface for Bluetooth OBELISK top3 (app)

⚠️ 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 twilight switch



click



45° cable

DuoFix spring plug-in terminal

Test connection

Spring plug-in terminal opener

Bluetooth OBELISK top3 (9070130)
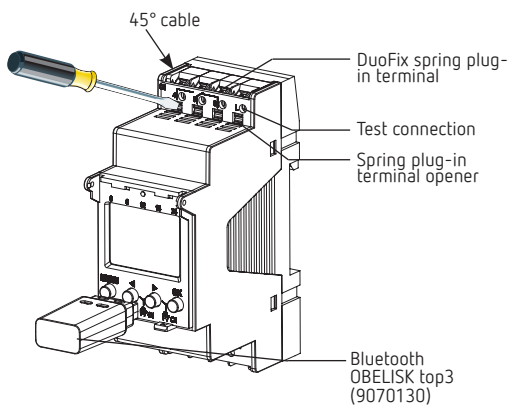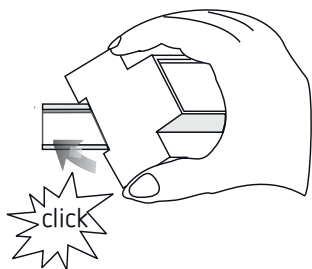
⚠ Check the depth of the control cabinet when OBELISK top3 is connected. The depth must be > 94 mm.

- ➤ 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
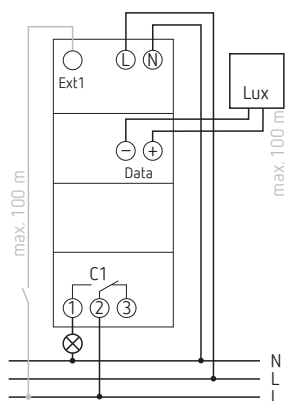


LUNA 111 top3
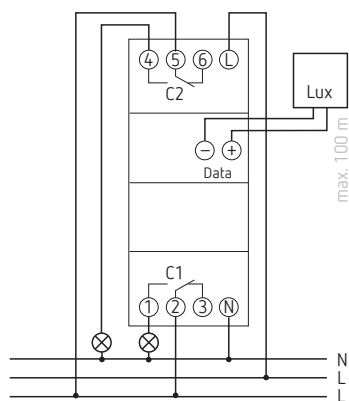
LUNA 112 top3

## Connecting the cable

- ➤ Strip cable to 8 mm (max. 9)
- ➤ Insert cable in the open DuoFix plug-in terminal at 45°
- ⓘ 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 mm$^2$), max. 50 m (2 x 0.75 mm$^2$)

⚠️ Avoid running sensor wiring parallel to mains power
cables

➤ Ensure correct polarity. Connect power source

## Mounting light sensor 9070415

➤ Mounting light sensor: 0.5-2.5 mm$^2$, strip cable by 9 mm
(max. 10 mm)



max. ⌀ 4 mm
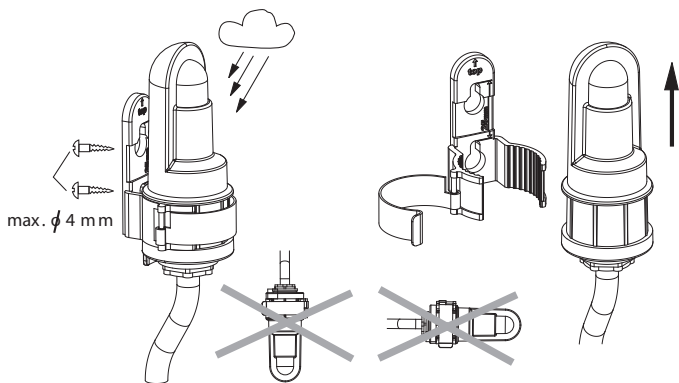
## Installing light sensor 9070456

➤ Installing light sensor: 0.25-1.5 mm$^2$, strip cable by 8 mm (max. 9 mm)

8 – 9 mm

max. 10 mm

ø 5 – 10 mm

<9 mm

IP 40

IP 66

ca. 63 mm

Ø 20 mm
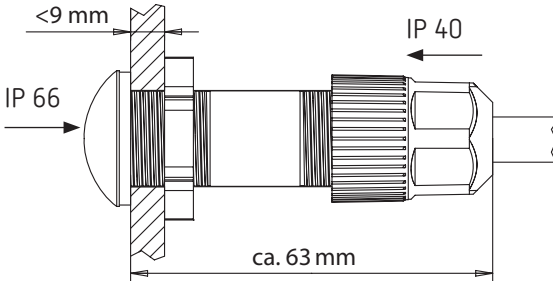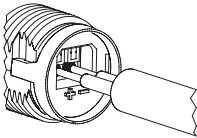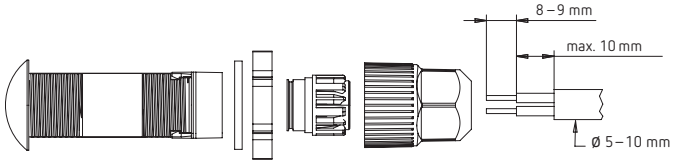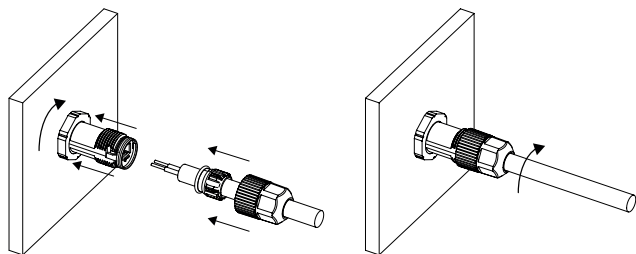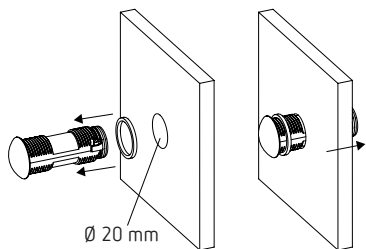
# 4. Device description

## Display & buttons



Text line

MESSWERT
C1 OFF  C2 OFF
*18* LX

ESC ◄ — + ► OK

Sunrise / sunset display

Channel status
C1, C2
ON = On
OFF = Off

Lux value display

Display of the active buttons with the relevant function



➢ MENU ——— MENU ◄ ► OK ——— ➢ OK

– Activate display
– Open menu
– Cancel menu
– ESC
  (leave menu)

➢ ◄ ►
Options
are displayed

– Save
  selection
– Confirm
  selection

# 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

```
MENU

CHANNEL        ▶  LIGHT      ▶  MANUAL       ▶  OPTIONS        ▶  END
C1 off

                  CHANNEL C1     CHANNEL C1      SENSORS

                  LUX VALUE      PERM ON         OPERATING
                                                 HOUR
                  DELAY TIME     PERM OFF                        * LUNA 111 top3
                                                 EXT INPUT
                  END            OVERRI ON
                                                 LCD-
                                 TIMER           ILLUMINATION

                                 END             LANGUAGE

                                                 PIN

                                                 FACTORY
                                                 SETTINGS

                                                 INFO

                                                 END
```

# Initial operation

```
DEUTSCH

ENGLISH      ▶   CHANNEL C1

ESPANOL          READING

FRANCAIS

   ⋮
```
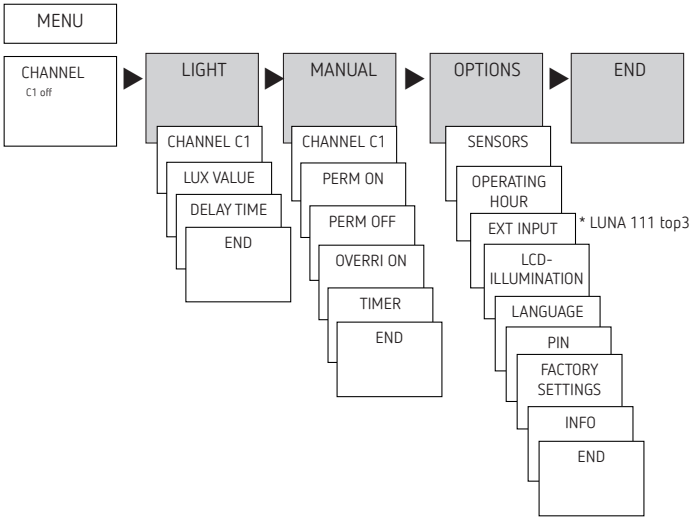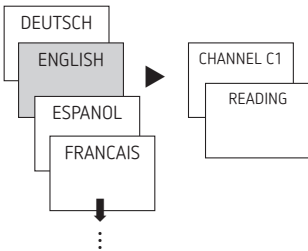
➤ Set language, press OK to confirm
➤ Press any button and display follows on screen (see figure)

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ⓘ If all settings are performed, the screen alternately shows
the automatic display and READING

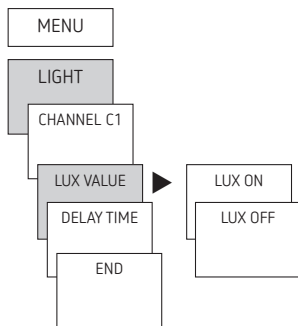ⓘ If a sensor is connected, the measured lux value appears
on screen (only during mains operation).

# 5. Settings and functions

## Set lux values

```
MENU

LIGHT
  CHANNEL C1
    LUX VALUE      ▶    LUX ON
    DELAY TIME          LUX OFF
        END
```
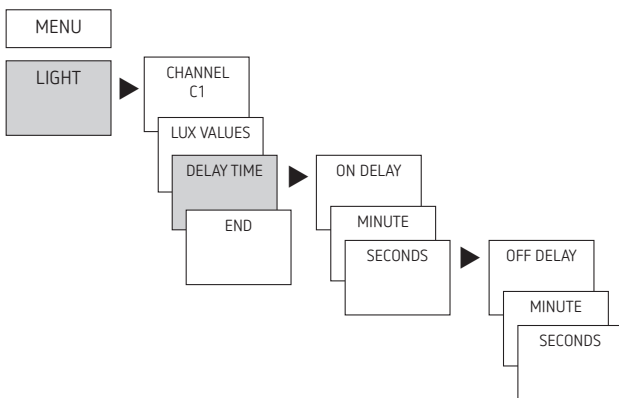
ⓘ The device has been preset at 15 lx for the switch on/
switch off level

➤ 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
➤ Set LUX VALUE, confirm with 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



- ⓘ 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 minute and confirm with OK.

# Allocate sensors

ⓘ The SENSORS are allocated in the menu under OPTIONS
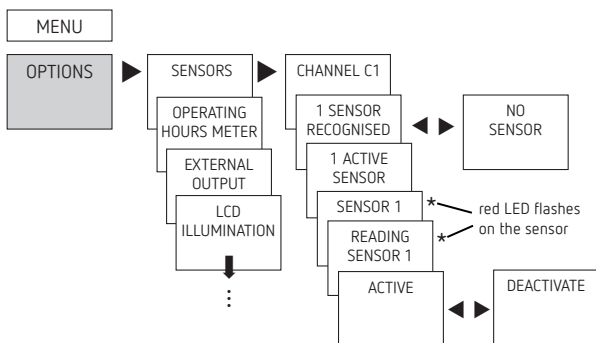


➤ Press MENU (see fig.)

## Connection options:
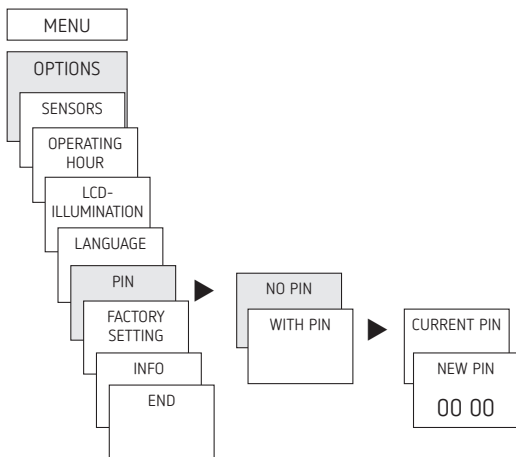
- 1 LUNA + max. 4 light sensors
- 10 LUNA + 1 light sensors
- Σ max. 16 devices (LUNA + light sensors)

ⓘ **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.

ⓘ If you have forgotten your PIN, call the Theben Hotline.

ⓘ Have the serial number ready.

```
┌──────────┐
│  MENU    │
└──────────┘
┌──────────┐
│ OPTIONS  │
 ┌──────────┐
 │ SENSORS  │
  ┌────────────┐
  │ OPERATING  │
  │ HOUR       │
   ┌────────────┐
   │ LCD-       │
   │ ILLUMINATION│
    ┌────────────┐
    │ LANGUAGE   │
     ┌──────┐         ┌────────┐              ┌─────────────┐
     │ PIN  │  ▶      │ NO PIN │              │ CURRENT PIN │
      ┌──────────┐    │ WITH PIN│  ▶          │ NEW PIN     │
      │ FACTORY  │                            │ 00 00       │
      │ SETTING  │
       ┌──────┐
       │ INFO │
        ┌──────┐
        │ END  │
        └──────┘
```

# 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 acti-
   vated, the programmed switching times and switching
   thresholds are ineffective
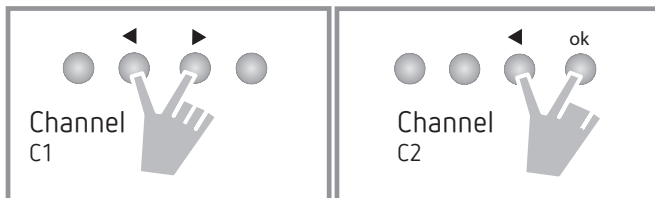
## Activating manual control

➤ Briefly press both buttons simultaneously

## Activating permanent switching

➤ Press both buttons simultaneously for 2 seconds

## Cancelling manual/permanent switching

➤ Press both buttons simultaneously
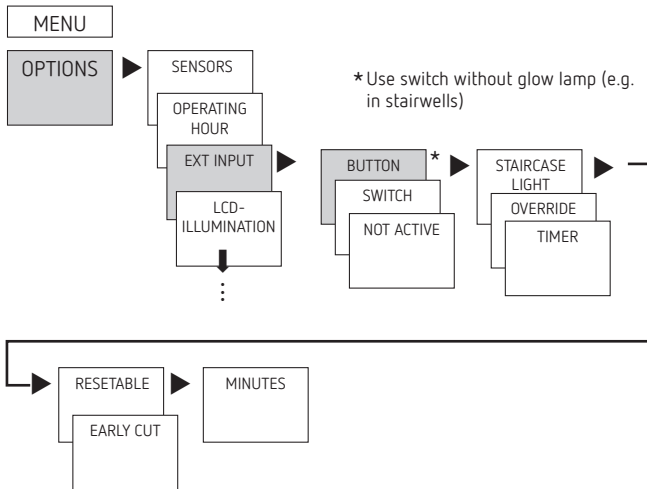
# Set external input (only LUNA 111 top3)

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: Permanent On, permanent Off are selectable

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

MENU

OPTIONS ▶ SENSORS

OPERATING HOUR

EXT INPUT ▶ BUTTON *

SWITCH

NOT ACTIVE

LCD-ILLUMINATION

*Use switch without glow lamp (e.g. in stairwells)

STAIRCASE LIGHT ▶

OVERRIDE

TIMER

RESETABLE ▶ MINUTES

EARLY CUT

➤ Press MENU, with ▶ select EXT INPUT and follow the indications on the display.

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

ⓘ 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

# 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 twilight switch using the Bluetooth OBELISK top3 memory card (9070130).
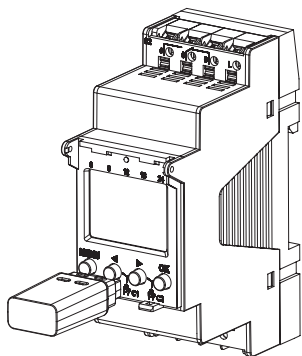


## Copying OBELISK → LUNA
Copies the switch program and optionally all twilight switch settings (e.g. external input, time format, etc.) from the memory card to the twilight switch.

## 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.
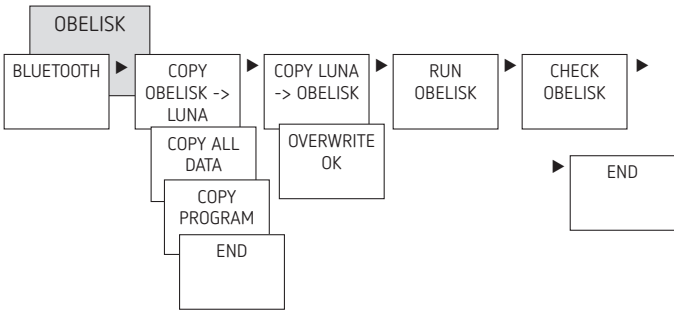


# Connecting the twilight switch, Bluetooth OBELISK top3 and smartphone (via app)

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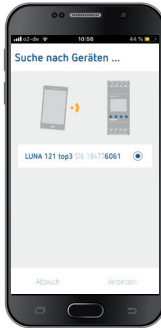
➤ Download the OBELISK top3 app from the App Store or Google Play Store

ⓘ 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" ⬆
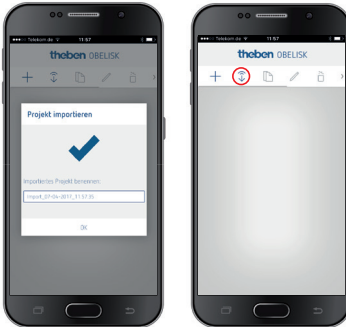
→ Device/device list appears on the display.



➤ Press „Connect"

➤ Press OK on the twilight switch
  → 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 |
| Standby: | 0,8 W |
| Brightness range: | 1−99.000 lx |
| On/off switch delay: | 0−59 min |
| Switching capacity max.: | 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<br>100 mA/24 V AC/DC |
| Switch output: | Switching of any external conductor is permitted |
| Shortest switching time: | 1 s |
| Switching accuracy: | to the second |
| Protection class: | II in accordance with EN 60730-1 subject to designated installation |
| Software: | class A |
| Rated impulse voltage: | 4 kV |
| Pollution degree: | 2 |
| Contact: | Changeover contact |
| Incandescent lamp load: | 2600 W |
| Halogen lamp load: | 2600 W |
| Fluorescent lamps: uncorrected:<br>series-corrected:<br>parallel-corrected: | 2600 VA<br>2600 VA<br>1300 VA (130 μF) |
| Compact fluorescent tubes (EVG): | 1100 W |
| LED lamps (< 2 W): | 50 W |
| LED lamps (> 2 W): | 600 W |
| Bluetooth OBELISK top3:<br>− Protection rating:<br>− Temperature:<br>− Range: | <br>IP 40<br>−30 °C … +55 °C<br>15 m on open air test site |
| Permissible ambient temperature: | −25 °C … +55 °C,<br>−40 °C … +70 °C (sensor) |

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

# 7. Contact

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