

# theben

## LUNA

LUNA 109

LUNA 110

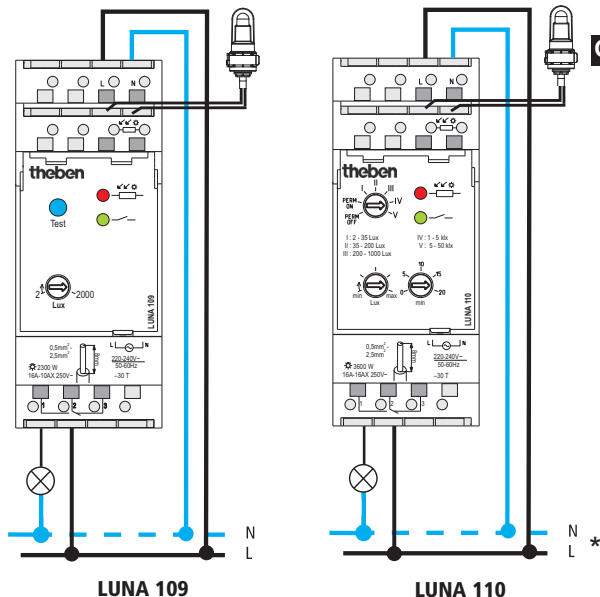
109 0 100, 109 0 200

110 0 100, 110 0 200

Ⓒ **Assembly and  
operating instructions**  
Twilight Switch



310 317 02



\* Current connection required for smooth zero-crossing switch operation (see connection diagram) only LUNA 110).

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## **Serviceadresse**

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**[www.theben.de](http://www.theben.de)**

# Basic advice



**! WARNING**

**Danger of death through electric shock or fire!**

- Assembly may only be carried out by qualified electricians!

- The device corresponds to EN 60669-2-1; it is designed for installation on DIN top hat rails (in accordance with EN 50022)

## Designated use

- The twilight switch is used for controlling the light facilities of streets, external stairways, shop windows, entrances etc.
- For use only in closed, dry rooms (device); the sensor is intended for outdoor installation

## Disposal

Dispose of equipment in an environmentally-friendly manner

# Connection/assembly



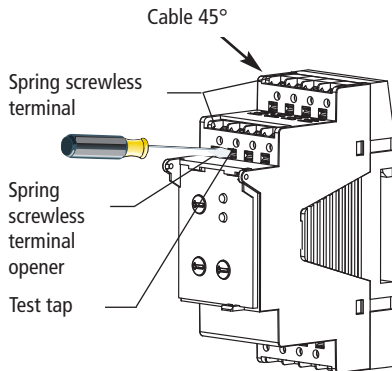
**! WARNING**

## **Danger of death through electric shock!**

- Assembly may only be carried out by qualified electricians!
- Disconnect power supply!
- Ensure it is not turned on again!
- Check power is off!
- Earth and short-out!
- Cover or shield any adjacent live parts.

## **Connect cable**

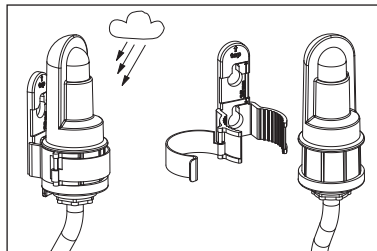
- Strip cable back to 8 mm (max. 9).
- Insert cable in open terminal at 45° angle (2 cables per terminal position possible).
- To open spring screwless terminal, press upwards with screwdriver.



# Connection/Assembly of a light sensor

GB

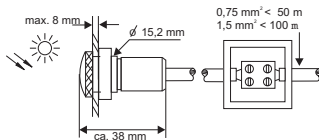
- Note the length of the connecting cable:  
max. 100 m ( $2 \times 1,5 \text{ mm}^2$ ), max. 50 m ( $2 \times 0,75 \text{ mm}^2$ )
- Avoid running the sensor line parallel to conductors.
- Surface-mounted light sensor:  $0,5\text{--}2,5 \text{ mm}^2$ , strip the wire to 10 mm (max. 11 mm).



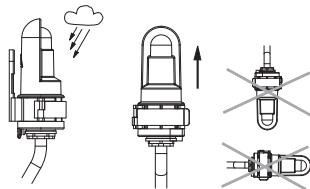
907 0 011



907 0 416



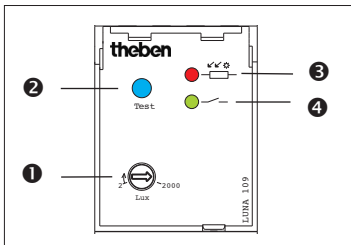
Surface-mounted light sensor



Built-in light sensor

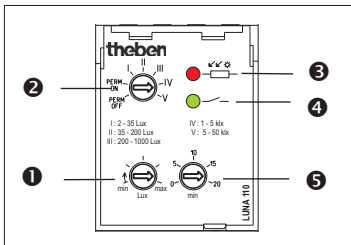
# Display and control elements

## LUNA 109



- 1 Potentiometer for setting the brightness: 2-2000 lx
- 2 Key **Test** for checking the installation (independent of brightness)
- 3 Immediate display of the switched condition by means of a red LED
- 4 Display of channel condition by means of a green LED (relay)

## LUNA 110

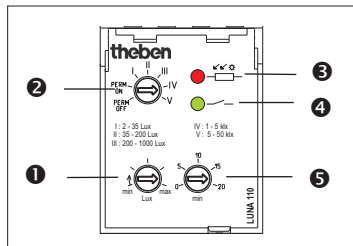


- 1 Potentiometer for setting the brightness threshold
- 2 Potentiometer for setting the brightness range:  
– I: 2–35 lx  
– II: 35–200 lx  
– III: 200–1.000 lx  
– IV: 1.000–5.000 lx  
– V: 5.000–50.000 lx
- 3+4 as described above
- 5 Potentiometer for switch ON/switch Off delay (0 to 20 min.)

# Initial start-up

The twilight switch with external light sensor is used for controlling the light facilities of streets, stairways, entrances etc.

- Set the desired range I-V on the potentiometer ② using a screw driver.
- Set the desired treshold ①.  
The red LED will light up, if the set Lux value underruns the ambient brightness.
- Recommendation: set a delay ⑤ of at least 1 min, to avoid switching errors owing to lightening flashes, car headlights etc.



**LUNA 110**

## Typical brightness values

daylight (bright)	80.000 lx
office rooms	500 lx
corridors and stairs	100-150 lx
street lighting	15 lx
full moon	ca. 0,3 lx

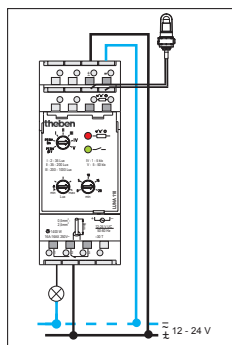
## GB Special voltage LUNA top2 24 V

110 4 100    121 4 100  
110 4 200    121 4 200

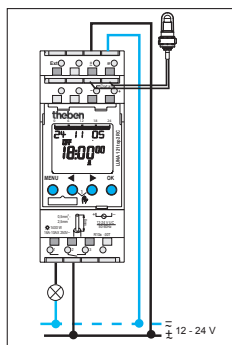


The technical data and the section on the "electrical connection" of 230 V devices (see operating instructions) do **not** apply to devices with special voltage.

### Electrical connection



LUNA 110 24 V



LUNA 121 top2 RC 24 V

The devices are designed for switching mains and low voltage (SELV, PELV, FELV).

With the LUNA 110 24 V the voltage to the sensor wiring is equal to the supply voltage.

### External outputs

The external outputs are designed for operating voltage of 12–24 V AC and DC and not for 230 V.

### Technical data

Permissible operating voltage:	12 V–24 V / 50–60 Hz +10 % –15 % 12 V–24 V DC +10 % –15 %
Switching capacity:	16 A, 250 V~ $\cos \varphi = 1$
Incandescent lamp load, halogen load:	1400 W at 230 V or 6 A
Flashlight (EB) 230 V:	180 W
Compact lamp (EB) 230 V:	7 x 7 W, 6 x 11 W, 5 x 15 W, 5 x 20 W, 4 x 23 W
Fluorescent lamps, parallel-corrected 230 V:	1 x 58 W / 7 $\mu$ F, 2 x 36 W (4.5 $\mu$ F each), max. 12 $\mu$ F
Halogen metal halide lamps 230 V:	1 x 70 W (12 $\mu$ F)
Standby output min.:	0.2 W (LUNA 110 24 V), 0.8 W (LUNA 121 top2 RC 24 V)
Power consumption type:	0.6 W (LUNA 110 24 V), 1.2 W (LUNA 121 top2 RC 24 V)
Protection rating:	IP 20 in accordance with 60529 (light sensor IP 55)
Power reserve:	10 years at 20 °C (LUNA 121 top2 RC 24 V)



# Technical Data

Nominal voltage:	<b>LUNA 109</b> 220–240 V, ~, +10 %/–15 %	<b>LUNA 110</b> 220–240 V, ~, +10 %/–15 %
Frequency:	50–60 Hz	50–60 Hz
On/off switch delay:	1 min.	0–20 min.
Power consumption:	ca. 3 VA	ca. 3 VA
Contact material:	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>
Contact:	floating	phase-independent (zero-crossover switching)
Gap:	<3 mm (μ)	<3 mm (μ)
Switching capacity max.:	16 A, 250 V~, cos φ = 1	16 A, 250 V~, cos φ = 1
Switching capacity min.:	10 mA/230 V AC 100 mA/12 V AC/DC	10 mA/230 V AC 100 mA/12 V AC/DC
Switching capacity fluorescent lamps:	10 AX	16 AX
Incandescent lamp load:	2300 W	3600 W
Halogen lamp load:	2300 W	3600 W
Fluorescent lamp loads – capacitive ballast uncorrected:	2300 VA	3600 VA
series corrected:	2300 VA	3600 VA
parallel corrected:	400 VA (42μF)	1200 VA (130μF)
dual circuit:	2300 VA	3600 VA
Fluorescent lamps – electronic ballast:	300 VA	1200 VA
Mercury and sodium vapour lamps: series corrected:	400 VA (42μF)	1200 VA (130μF)
Compact fluorescent lamps – electronic ballast:	9x 7W, 7x11 W, 7x15 W, 7x20 W, 7x23 W	34x7 W, 27x11 W, 24x15 W, 22x23 W
Permissible ambient temperature:	–30 °C ... +55 °C (device) –40 °C ... +70 °C (sensor)	–30 °C ... +55 °C (device) –40 °C ... +70 °C (sensor)
Protection class:	II (light sensors III) for designated installation	
Protection rating:	IP 20, IP 55 (surface-mounted light sensor), IP 65 (built-in light sensor) in accordance with EN 60529	