

# theben

309185 04

## Operating Manual

Sensor module LUXOR 411 and  
weather sensor system LUXOR 440



LUXOR 411

LUXOR 440

## 1.0 Designated use

The sensor module is used for setting threshold values and measuring brightness (twilight) and wind. The separate weather sensor system additionally measures temperature and rainfall. The sensor module and the weather sensor system complement the existing series of LUXOR devices, and are suitable for installation in detached houses and blocks of flats, offices, etc.

The sensor module is designed for regulation installation in a control cabinet/distribution cabinet, and is suitable for use in dry premises with normal levels of contamination. The weather sensor system is intended for outdoor installation.

## 2.0 Brief description

- The sensor module and the weather sensor system are connected to the LUXOR system via the 2-wire COM interface.
- Up to 3 light sensors (separately-mounted light sensors 907 0 008) and one wind sensor (wind sensor LUXOR 413) can be connected to the inputs of the sensor module.
- The 6 threshold values for the various environmental influences (3 x Sun, 1 x Twilight, 1 x Wind and 1 x Temperature) can be defined via the selector switches Sun 1, Sun 2, etc.
- If the weather sensor system is connected, the brightness value obtained will be compared with the Twilight and Sun 1 thresholds. The brightness value from light sensor 1 will be ignored. If the weather sensor system is not connected, the brightness value from light sensor 1 will be compared with the Twilight and Sun 1 thresholds.

## 3.0. Safety notes



In order to prevent any danger of fire or risk of electric shock, the unit may only be connected and installed by a qualified electrician, in compliance with national regulations and safety requirements. Tampering with or making modifications to the device will invalidate the guarantee.

### Sensor module

- After connecting, cover the connection screws of the mains input terminals, using the mains terminal cover (see Fig. 6), as the sensor connection lines routed over this carry safety extra-low voltage (SELV).
- Use the supply voltage (SELV) for the weather sensor system for connecting this weather sensor system only. Do not connect any other consumers to this.
- Use only safety extra-low voltage (SELV) (12-24 V DC) for powering the LUXOR 413 external wind sensor.
- All light sensor inputs carry safety extra-low voltage (SELV).
- Use the shortest possible lines for connecting the light sensors.
- Do not allow the cables of the light sensors or wind sensor to carry any AC voltage.

### Weather sensor system

- Do not touch the rain sensor while the weather sensor system is in operation. It can become very hot.
- Please note: When it is windy, awnings/blinds take some time to retract. Therefore, define the wind thresholds at a level below the value specified by the awning/blind manufacturer.
- At temperatures considerably below freezing, and when it is windy, the wind sensor can freeze up.
- As the rain sensor only reacts when water droplets fall directly onto the sensor rods, a certain time delay can occur between the rain beginning and the sensor recognising this, during which time, for example, the awning may become wet. To prevent this from occurring, add a further variable, such as wind.

## 4.0 Key to symbols

- ☀ → Sun 1-3
- ☾ → Twilight
- ☹ → Temperature
- ↔ → Wind
- ☔ → Rain

## 5.0 Description of control level

When the "Learn" selector switch is set to ☀ 1-3, ☾, ☹ etc., the respective channels can then be assigned to the other LUXOR devices.

If the "Learn" selector switch is set to ☀ 1-3, ☾, ☹ etc., the SET LED will signal "Learn mode".

Selector switch for Sun 3  
from 1000 - 100000 lux

Selector switch for Sun 2  
from 1000 - 100000 lux

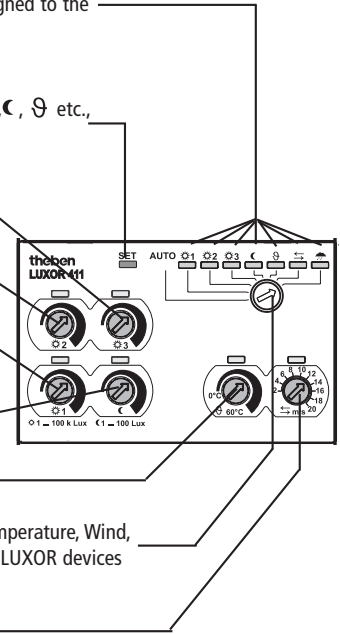
Selector switch for Sun 1  
from 1000 - 100000 lux

Selector switch for Twilight  
from 1 - 100 lux

Selector switch for Temperature  
from 0 - 60 °C

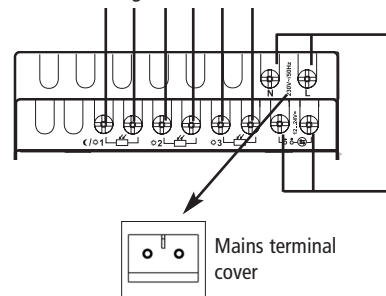
"Learn" selector switch (Sun 1-3, Twilight, Temperature, Wind, Rain), for assigning the channels of the other LUXOR devices

Selector switch for Wind  
from 2 - 20 m/s



## 6.0 Description of input terminals

Connection for max. 3 external light sensors (SELV)

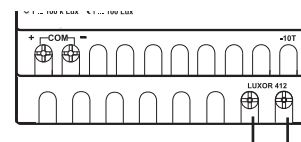


Operating voltage  
230 V~  
+10 % / -15 %.

Observe L and N.

Connection for the external  
wind sensor LUXOR 413  
with power unit (SELV)

## 7.0 Description of output terminals



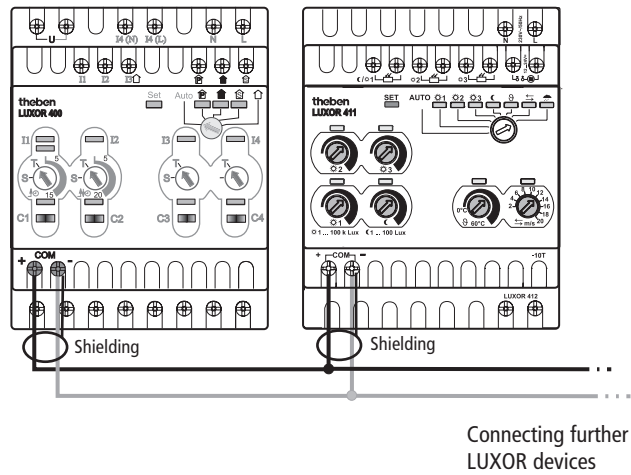
Connection:  
Supply voltage (SELV) for the  
weather sensor system LUXOR 440

## 8.0 Connection to the LUXOR system

- Use the following lines: EIB/KNX bus line type YCYM or Y(ST)Y or telecommunication line J-Y(ST)Y.
  - Connect both sides of the shielding to the minus bus terminal on the COM bus.
  - The COM line length may be up to 100 m.
  - Always route the COM line separately from other lines (separate cable).
  - Do not route the COM line parallel to 230 V lines.
  - Upgrades to max. 16 devices inc. basic module.
  - Ensure correct polarity!
- > If the COM connection fails, the SET LED flashes continuously.

**Ensure correct polarity!**

Make the 2-wire connection between the COM interfaces.



- ◆ with Sun 2 and 3 ☀, Twilight ☾, Temperature ⚡, Wind ↔ and Rain ☔

⇒ Proceed as described under "Sun 1 ☀".

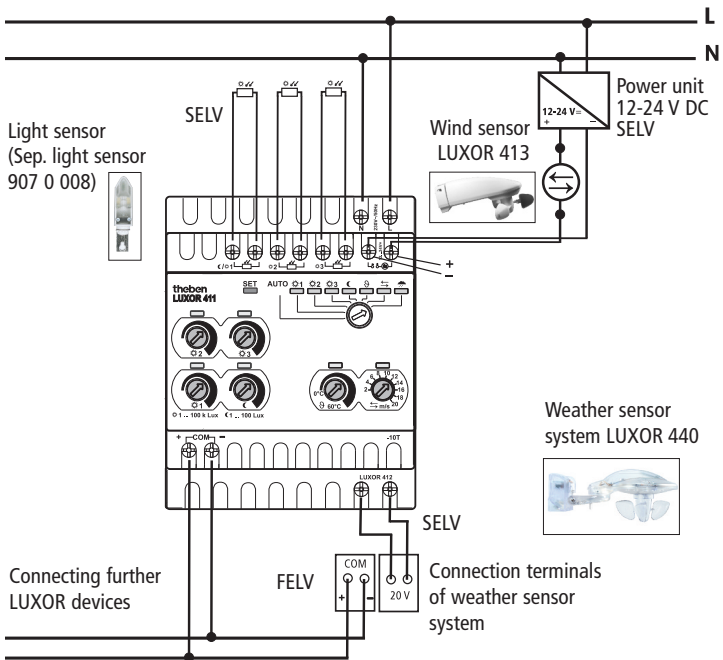
**Note**

- LUXOR 400, 402, 404, 405: Only the Twilight function can be assigned to these devices.
- LUXOR 408, 409: With these devices, only one Sun function can be assigned per channel.

**11.0 Setting the threshold values**

- Without weather sensor system: light sensor 1 triggers Sun 1 and Twilight.
- With weather sensor system: light sensor 1 is ignored. The brightness value comes from the weather sensor system.

**9.0 Connection and installation**

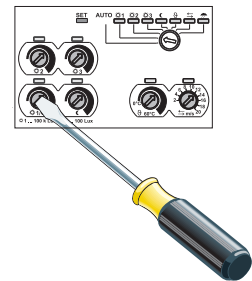


"Note: Connect the SELV voltage supply and the FELV communications connection to the LUXOR 440 weather sensor system via two separate cables."

- ◆ in conjunction with light sensors and wind sensor LUXOR 413

**Sun 1 function ☀**

- ⇒ Connect light sensor 1. This supplies information to the sensor module.
- ⇒ Use a screwdriver to set the threshold value at the Sun 1 selector switch. The LED lights up when the threshold value is exceeded, and goes out when the value falls below the threshold value.



**Sun 2 and 3 functions ☀**

⇒ Proceed as described under "Sun 1 ☀".

**Twilight function ☾**

- ⇒ Use a screwdriver to set the threshold value at the Twilight selector switch ☾. The LED goes out when the threshold value is exceeded, and lights up when the value falls below the threshold value.

**Wind function ↔**

- ⇒ Proceed as described under "Sun 1 ☀". The LED lights up when the threshold value is exceeded, and goes out when the value falls below the threshold value. The threshold value can be adjusted in steps of 2 m/s, from 2-20 m/s.

- ◆ in conjunction with the weather sensor system LUXOR 440

- The selector switches in the bottom row (Sun 1 ☀, Twilight ☾, Temperature ⚡ and Wind ↔) are assigned to the weather sensor system.

- ⇒ Connect the weather sensor system. The measurements are sent, via the COM interface, to the sensor module.
- ⇒ To set the threshold values for Sun 1, Twilight, Temperature and Wind, proceed as described under Sun 1/Twilight.
- ⇒ Temperature function: The LED lights up when the threshold value is exceeded, and goes out when the value falls below the threshold value.

- ◆ in conjunction with light sensors and the weather sensor system LUXOR 440

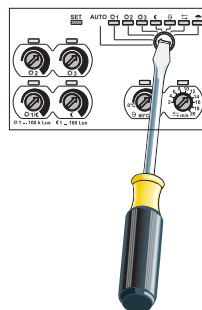
- ⇒ Proceed as described under "Sun 1 ☀". **Bear in mind** that light sensor 1 is ignored. For the Sun 1 and Twilight functions, the brightness value from the weather sensor system is used.

**10.0 Assigning/"teaching-in" channels**

**Hint:** First, assign the sensor module functions ☀, ☾, ⚡, etc. to the individual LUXOR devices (e.g. to the dimming module, shutter module, etc.), before defining the threshold values.

- ◆ with Sun 1 ☀ (using shutter module LUXOR 408 as an example)

- ⇒ Use a screwdriver to set the "Learn" selector switch to ☀ 1. The Sun 1 LED, the SET LED and the LEDs for the assigned channels on the shutter module light up.
- ⇒ If you wish to select/deselect a channel, press the respective channel key C1 - C4 on the shutter module. If the channel is selected, the LED will light; if it is not selected, the LED will not light.
- ⇒ To end the assignment session, turn the "Learn" selector switch to **Auto**, which will cause the SET LED to go out.



### ◆ in conjunction with an external wind sensor LUXOR 413 and weather sensor system LUXOR 440

- If the weather sensor system and an external wind sensor (with separate power unit) are connected, the sensor module reacts to the value that reaches the threshold first.

## 12.0 Functionality with mod. LUXOR 400, 402, 404

- The modules LUXOR 400, 402, 404 only react to twilight.
- The channels assigned to the Twilight function, when the value falls below the set twilight threshold, switch **on**.
- The channels assigned to the Twilight function, when the set twilight threshold is exceeded, switch **off**.
- If the panic function or presence simulation feature is active, LUXOR 400, 402 and 404 will not react to the sensor module!

⇒ Operated as described in chapters 10 (selecting the channel) and 11 (setting parameters).

## 13.0 Functionality with dimming mod. LUXOR 405

- The dimming module LUXOR 405 reacts only to twilight.
- When the value falls below the set threshold value, the channels assigned to the Twilight function are switched to 100 % (for programmes P1, P2 and P4, but not P3).
- When the set Twilight function is exceeded, the channels assigned to the Twilight function are switched to 0 % (for programmes P1, P2 and P4, but not P3).
- In programme P3, the dimming module does not react to the sensor module.
- If the panic function, a motion sensor, a light setting or presence simulation are active, the dimming module will not react to the sensor module.

⇒ Operated as described in chapters 10 (selecting the channel) and 11 (setting parameters).

## 14.0 Functionality with shutter mod. LUXOR 408, 409

**Hint:** First adjust the curtains, runtimes, intermediate positions etc. at the shutter module as required, before assigning the sensor system functions, e.g. Twilight.

A test mode with shortened delay times (minutes = seconds) for setting the threshold values can be activated and deactivated via the "Learn mode" on the sensor module.

### ◆ for Sun 1, 2, 3 ☀

- The Sun function can be triggered in both manual and Auto mode. It can only be triggered above the intermediate position.
- If the set brightness threshold is exceeded (3 min.), the curtain moves to the taught-in intermediate position. If the value falls below the brightness threshold (15 min.), it returns to the top end position.
- **Semi-automatic mode** (awnings only): Semi-automatic mode becomes active if the Sun function has been assigned to a channel and a movement key has been pressed.  
At twilight in the morning or evening, semi-automatic mode is deactivated and the awning moves into the top end position.

**Idle periods with Sun function** (only with clock module LUXOR 414)  
The purpose of this function is to stop a curtain moving out too early, or in too late.

- Morning idle period:** The curtain does not move down before the programmed time.
- Evening idle period:** The curtain moves up no later than the programmed time, although the set light threshold is still exceeded.

### ◆ for Twilight ☾

The Twilight function can only operate in conjunction with the clock module LUXOR 414.

- If the value remains below the set threshold value for 5 minutes, the curtain moves to the bottom end position.
- The Twilight function is only permitted after 12 o'clock, and only once per day.
- The curtain can be moved back up only via a switching time, or manually.
- When the blinds are in operation, there is not a turn.
- The Twilight function works in manual as well as Auto mode.

**Idle periods with Twilight function** (only with clock module LUXOR 414)

- The morning idle period is not relevant for the Twilight function.
- The evening idle period means that the curtain does not move down before the programmed time.

### ◆ with Temperature ☹, Wind ⇄, Rain ☔ and Frost ❄

#### Temperature function ☹

- If the value falls below the set temperature threshold, the curtains move to the bottom end position.
- If the value falls below the set temperature threshold, they will return after 15 minutes to their original position, provided that they have not been moved into a new position via the LUXOR 414 module, or manually.

#### Wind function ⇄

- Exceeding the set wind threshold value results in the hanging moving into the specified end position.
- The curtain cannot be controlled manually while the Wind function is active (indicated by a jerk).

#### Rain function ☔

- If it starts to rain, the curtain is immediately retracted.
- The curtain now no longer moves out automatically. It can, however, be controlled manually.
- The Rain function remains active for some time after the rain stops. The curtain is then returned to its original position.

#### Frost function (awnings only) ❄

- In the event of frost (<3 °C), the awning is not moved out.
- Automatic movement is disabled, although a manual movement is possible.

### Factory settings and channel allocation for various curtains (table 1)

Sensor system Shutter module curtain	Sun 1	Sun 2	Sun 3	Twilight	Wind	Temp.	Rain
• Shutter channel 1 • Shutter channel 2 • Shutter channel 3 • Shutter channel 4							
• Blind channel 1 • Blind channel 2 • Blind channel 3 • Blind channel 4	X				X		
• Awning channel 1 • Awning channel 2 • Awning channel 3 • Awning channel 4	X				X	X	X

### Prioritisation of functions (table 2)

**Example:** If the Wind function is active, the blind cannot be moved down by the Temperature function, as the Wind function has priority 1.

Function	Priority
Wind	1
Frost	2
Rain	3
Panic	4
Clock	5
Twilight	6
Temperature	7
Sun	8

## 15.0 What happens if ...

	Cause	Remedy
the Twilight function is active following startup.	Light sensor 1 and the weather sensor system are not connected. The Twilight function is triggered due to the absence of a light sensor and a weather sensor system.	Connect the weather sensor system or light sensor 1.
the sensor module does not react to light sensor 1.	The weather sensor system is connected. For Sun 1 and Twilight, the brightness value from the weather sensor system is used.	Do not connect a weather sensor system.
the Set LED flashes rapidly.	In "Learn mode", an attempt was made to activate a further programming process, or the "Learn" selector switch was set to "Learn mode" when power was restored.	Set all the selector switches for the relevant devices to Auto.

## 16.0 Technical data

Operating voltage:	230 V~, + 10 %/ - 15 %
Mains frequency:	50 Hz
Power consumption:	5.5 VA (without a LUXOR 440 weather sensor system) 11 VA (with a LUXOR 440 weather sensor system)
2-wire connection for COM:	Any cross-section / max. length 100 m / Functional extra-low voltage, FELV
Permitted ambient temperature:	-10 °C ... +50 °C
Protection class:	II in accordance with EN 60730-1 for designated installation
Degree of protection:	IP 20 in accordance with EN 60529
Mode of operation:	RS Type 1B in accordance with EN 60730-1
Light sensor:	Separate Theben light sensor no. 907 0 008 (up to 3 can be connected), line length up to up to 100 m
Wind sensor:	LUXOR 413: for use with 12-24 V DC, SELV, additional power unit required, line length up to up to 100 m
Weather sensor system:	LUXOR 440: for brightness, temperature, wind and rain

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