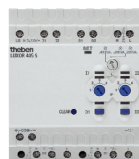


theben

Operating Manual
Dimmer module
LUXOR 405 S
4050100



307238

1.0 Designated use

The **LUXOR** dimmer module expands the existing **LUXOR** series of devices. It switches and dims the brightness of incandescent lamps, high-voltage and low-voltage halogen lamps, dimmable compact fluorescent lamps (energy-saving lamps) or dimmable LED lamps for 230, 50 Hz. It is suitable for installation in single-family and multiple family houses, offices, etc. The device is intended for designated installation in control and distribution cabinets. It is suitable for use in dry rooms with a normal amount of dirt.

2.0 Brief description

- The **LUXOR** dimmer module functions as an independent unit. It is connected to the **LUXOR** system via the 2-wire **COM** interface and is therefore involved in all comfort functions such as panic function, central ON, central OFF and presence simulation.
- Only keys can be connected to inputs **I 1** to **I 2**.
- In principle, various external wires/phases can be applied to the control inputs and the switching outputs.
- Various dimming responses can be selected using program selector switches **P1** to **P4**.
- Key actuation differs as follows:

– short keystroke on the control button	= switching
– long keystroke on the control button	= dimming
– very long keystroke (> 3 sec.) on the control button (in P3 and P4 only)	= continuous light and/or continuous OFF

3.0. Safety notes



WARNING

Danger and death through electric shock or fire!

➤ Assembly may only be carried out by qualified electricians!

- The connection of dimmers in parallel is not permitted (exception: parallel operation **C1/C2**, see connection chap. 6.0)!
- Do not by-pass the dimmer!
- Do not install an isolation or adjustable transformer before the dimmer!
- Only use electronic transformers that are suitable or approved for operation with a dimmer!
- Operation with differing load types at the same channel is not permitted. Only the combination of **R** and **C** loads (incandescent lamps and e. g. **LEDs**) is permitted.
- The voltage supply (at the control cabinet or distribution cabinet) must be switched off for a load change and when replacing lamps!
- When replacing lamps, switch off the power supply (at the appropriate circuit breaker).
- Do not operate wound transformers or other inductive loads with other loads (e. g. electronic transformers, energy-saving lamps, **LED** lamps) together at the same dimming channel.

⚠ Due to the continuous technical progress, abnormalities in dimming response or radio interferences cannot be excluded when operating dimmed lamps (in particular **LEDs**).

4.0 Description

2-channel operation **D1** and **D2**
rated at 200 VA each

1-channel operation **D1** rated at
400 VA (see connection chap. 6.0)

When the selector switch on **LUXOR 400**
is in position the **LED** set indicates the program status.

LED illuminates when a contact signal is
present at the input **I**.

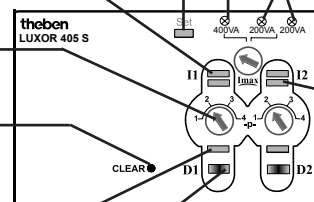
Program selector switch for
programs **P1** to **P4**

CLEAR key for resetting the dimmer in the
event of malfunction and on indication of
overflow/over-temperature

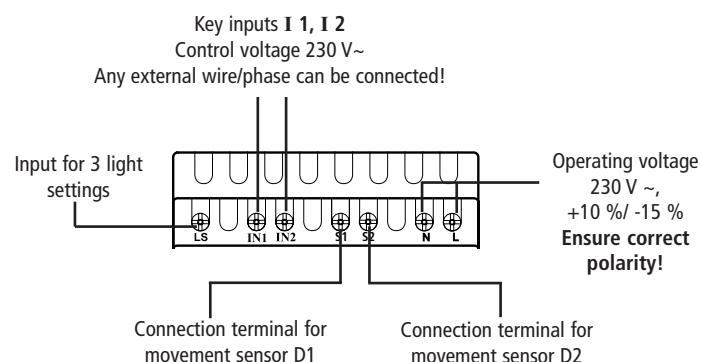
LED illuminates when the
output is switched on.

Channel key **D1** (**D2**) for manual **ON/OFFS**
switching (manual key) and programming of
central functions

LED illuminates when a malfunction,
overflow or over-temperature is present.



4.1 Input terminals

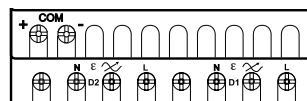


4.2 Output terminals

Dimmer outputs

D1 and **D2** individually each 200 VA
D1 and **D2** in parallel operation 400 VA

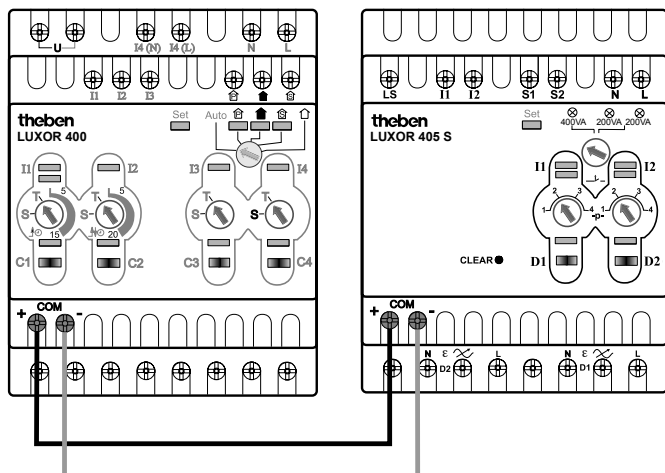
- The outputs are adjacent and isolated for the supply.
- Any external wire/phase can be connected!
- Semi-conductor switch outputs



5.0 Connecting upgrade devices

- 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.

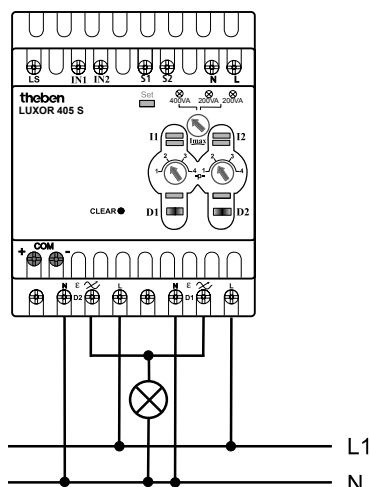
-> If the **COM** connection fails, the **SET** **LED** flashes continuously.



⚠ Ensure correct polarity!
Make the 2-wire connection between the COM interfaces.

The LUXOR bus (COM interface) is a functional extra-low voltage (FELV) with basic insulation. Treat connection and lines as mains voltage and mains lines.

Connection 1 x 400 W – Parallel switching



6.0 Connection and installation

Connection 2 x 200 W

Connecting the inputs

Input **I 1** acts on output **D1**.

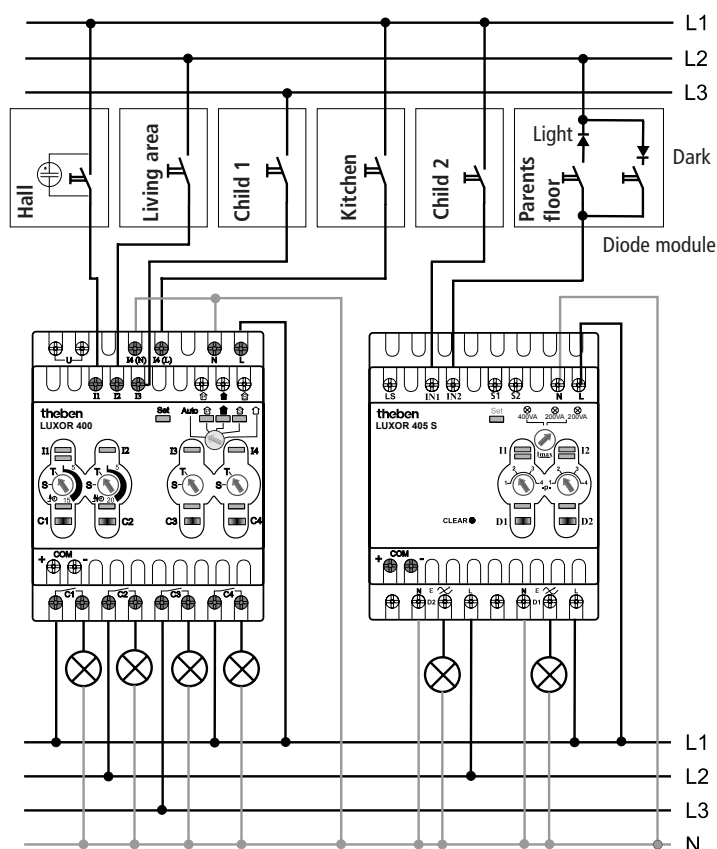
Input **I 2** acts on output **D2**.

Input **S 1** acts on output **D1**.

Input **S 2** acts on output **D2**.

⚠ In 1-channel operation, I 2 and S 2 do not function.

Input **LS** can trigger 3 independent light settings.



⚠ Do not connect the inputs in parallel.

7.0 Selection programs P1, P2, P3 and P4

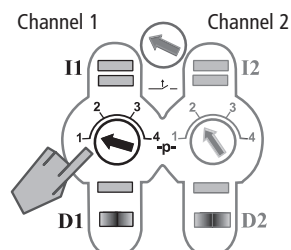
4 programs **P1** to **P4** can be selected using the program selector switch.

◆ Program P1

Program **P1** is the standard dimming program with the following sequences:

For the 1 key dimmer

- One brief keystroke switches on the light to 100 %.
- Pressing it again switches the light off again.
- A long keystroke dims the light.
The light is dimmed up to 100 %, for example, for as long as the key is depressed. It is then dimmed down again. The entire process is repeated until the key is released again.



"Teaching-in" a brightness value (minimum value in P1 to P4)

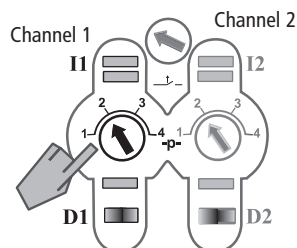
The smallest value to which the dimmer is to be set can be "taught in" (in **P1** position), see section 8.

For the 2 key dimmer

- One brief keystroke on the (bright) key switches on the light to the preset value.
- One brief keystroke on the (dark) key switches on the light off.
- One long keystroke on the (bright) key slowly increases brightness to 100 %.
If the key is previously released, the value that has been reached is maintained.
A further long keystroke increases brightness to 100 %.
- One long keystroke on the (dark) key reduces the brightness to 10 % and/or the minimum value (if a value has been previously set).

◆ Program P2

- Program **P2** corresponds to **P1**, except when switched on. In this case, the light does not switch to 100 % brightness but to the last brightness value prior to switching off.
- After the 1st short keystroke, the (bright) key (with 2-keys dimmer) also dims to the set value, the 2nd keystroke switches off.



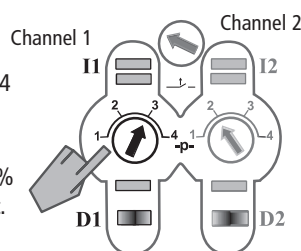
"Teaching-in" a brightness value (upper reduction value for P3)

The upper reduction value can be "taught-in" here (in position P2), see section 8.

◆ Program P3 (staircase light function with continuous light)

Program **P3** behaves like an automatic staircase light function and is identical on 1 and 2 switch dimmers. **P3** runs as follows:

- One keystroke switches the light on to 100 %.
- The light is maintained at 100 % for 1, 2, 4 or 8 min. periods (see "Teaching-in" the staircase light time, section 8).
- The value is then reduced to between 40 % and 80 %. This value is maintained for 40 sec.
- **P3** then switches to 30 % or the programmed minimum value. This value is maintained for 10 sec.
- Program **P3** switches off.
- If during this process the key is pressed briefly, the "staircase light function" starts from the beginning.
- If during this process the key is pressed for longer than 3 sec., the program switches to continuous light (100 %) (channel LED flashes).
- The continuous light can be switched off by one short keystroke.



"Teaching-in" the staircase light time (in position P3), see section 8.

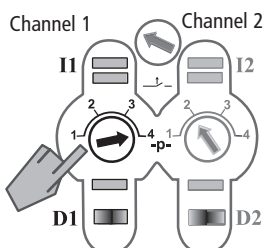
◆ Program P4

Program **P4** contains a **night and/or security light**.

- One short keystroke increases the light to 100 % brightness.
- The light is maintained at 100 % for 1, 2, 4 or 8 min. periods.
- A further keystroke slowly reduces the light to 10 % or to the entered minimum value. This value is maintained (**night and/or security light**).
- A further keystroke increases the brightness to 100 % again.
- If while the minimum value is maintained, the key is pressed for longer than 3 sec. the light switches off.
- If - with the light switched on (100 %) - the key is pressed for longer than 3 sec. the program switches to continuous light (100 %) (channel LED flashes).
- A further brief keystroke reduces the light to the minimum value.

A "timer function" starts the switching at 100 %. When this expires, the light is automatically reduced to the minimum value.

"Teaching-in" the timer function (in position P4), see section 8.



8.0 "Teaching-in" various brightness values

You have the option of setting or "teaching-in" various brightness values in positions P1 to P4:

1) Brightness (minimum values) in position P1

- Press the manual key **D1 and/or D2** for longer than 3 secs. All LEDs illuminate; the lamp illuminates up to the previously set light value.
- Set the brightness value (10 % - 40 %) with the key (**not** with the manual key).
- Confirm briefly with the manual key **D1 and/or D2**. The set value is accepted. The LED illuminates for the output illuminates.

2) Brightness (top reduction value at 40 % - 80 %) in position P2

- For operation, see description under 1)

3) Staircase light time (1, 2, 4 or mins.) in position P3

- Press the manual key **D1 and/or D2** for longer than 3 secs. All LEDs illuminate.
- Select the stairwell light time using the program selector switch: P1 = 1 mins., P2 = 2 mins., P3 = 4 mins., P4 = 8 mins.
- Confirm briefly with the manual key **D1 and/or D2**. The selected time will be accepted. The LED illuminates for the output illuminates.
- If necessary, set the program selector switch back to **P3**.

4) Night and/or security light (1, 2, 4 or 8 mins.) in position P4

- For operation, see description under 3)
- Also select the time using the program selector switch: P1 = 1 mins., P2 = 2 mins., P3 = 4 mins., P4 = 8 mins., as described above.
- If necessary, set the program selector switch back to **P4**.

9.0 "Light setting" function (LS)

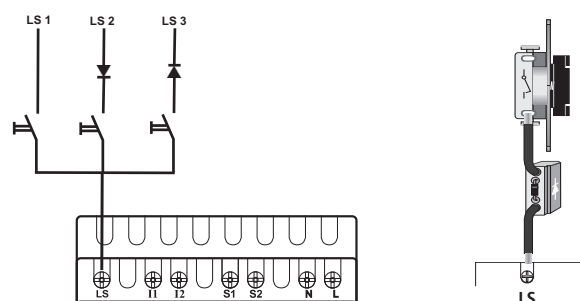
- ⚠ 3 light settings can be "taught-in" and set; this is only possible, however, in programs **P1** and **P2**.

◆ "Teaching-in" a light setting

- Enter the required brightness values.
Press one of the 3 setting keys (additional keys for other light settings) for longer than 3 sec.
The brightness values will be saved.

◆ Running a light setting

- Briefly press one of the 3 setting keys. The channels switch to the "taught-in" light value.
- Pressing the setting key again switches the channels off.



- ⚠ Do not connect the input of the light settings of several devices in parallel.

10.0 "Movement sensor" function (S)

◆ Switch-on

in P1, P3, P4 => switches to 100 %.

in P2 => If the light is already switched on, the brightness is increased to 100 %. If the light is not switched on, the last brightness value is achieved.

◆ Switch-off

in P1 => switches to 0 %.

in P2 => If 100 % was set, the last brightness value is achieved. If no brightness value was set, the program switches to 0 %.

in P3 => starts the stairwell light function.

in P4 => starts the "timer function".

11.0 Central function

Each channel can be assigned either panic, central OFF, central ON or presence simulation as a central function. The function is possible only in combination with LUXOR 400 (see operating manual for LUXOR 400).

◆ Panic ☼

The assigned channels are switched on. They cannot be operated again until panic is cleared.

◆ Central OFF ■

The assigned channels are switched off. No further operation is possible.

◆ Central ON ◻

The assigned channels are switched on. Operation is now possible again.

◆ Presence simulation (AWS) ☼

The assigned channels are switched. Operation is now possible again.

- During operation, the current brightness values of the channels are checked and where applicable saved with the time information.
- The values thus collated are saved in the device every 24 hours. After 7 days, the old values are overwritten and resaved.
- After start-up, no further values are saved; a presence simulation sequence cannot be started until a week has lapsed.
- After a RESET and/or power is restored, the presence simulation values are maintained in the device.

12.0 Function in timer module LUXOR 414

Info:

- The dimmer module LUXOR 405 S can be taught-into all 8 channels of the timer module (see operating manual LUXOR 414, section 13).

• Behaviour with switching time/astronomical time

The percentage value set in the timer module LUXOR 414 is output.

• Behaviour with switching time/astronomical time

If the sensor is taught into a channel in addition to the timer, the night-time interruption (i.e. the idle period) acts on the dimming function rather than on the astronomical time. Astronomical times are always used.

• Central functions

- Panic function

If this function is active during a timer command, the timer command is not used until the function is terminated.

- Presence simulation (AWS)

If this function is active during a timer command, the does not react to the AWS taught-in channel.

• Astronomical time/nighttime interruption (idle period) (see table)

	Astro - evenings	Nighttime interruption	Nighttime interruption	Astro mornings	Explanation
	Sunset	Start	End	Sun rise	
Times	16:10	20:00	6:00	8:10	Winter
Switching	ON	OFF	ON	OFF	Normal sequence
Times	21:30	20:00	6:00	4:50	Summer
Switching	—	OFF	—	OFF	remains OFF
Times	19:30	20:00	6:00	5:55	evenings only
Switching	ON	OFF	—	OFF	ON
Times	20:30	20:00	6:00	6:55	mornings only
Switching	—	OFF	ON	OFF	ON

• Switching time

With normal switching times, the nighttime interruption (idle time) has no function. The switching time is always used.

13.0 Function in combination with sensor module LUXOR 411_412



Info:

- The dimmer module LUXOR 405 S can be taught-into the dimming channel on the sensor module LUXOR 411 module (see operating manual LUXOR 411_412 section 10).
- The dimmer module LUXOR 405 S reacts only to twilight (80 secs. delay).
- When the set Twilight function is underrun, 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 dimmer 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.

Relationship between twilight, idle time and output status (see table)

Twilight	Idle period % value (LUXOR 414)	Sensor	Channel (LUXOR 405 S)
getting dark	0 % was present	is disabled	unchanged
getting dark	>0 % was present	is enabled	100 %
it is dark	0 % approaching	being disabled	0 %
it is dark	>0 % approaching	being enabled	100 %
getting bright	0 % was present	remains disabled	unchanged
getting bright	>0 % was present	remains enabled	0 %
it is bright	0 % approaching	being disabled	unchanged
it is bright	>0 % approaching	being enabled	unchanged

14.0 Technical data

Operating voltage:	230–240 V AC, +10 % / –15 %
Frequency:	50 Hz
Standby:	1,3 W
Minimum load:	2 W
Protection rating:	IP 20 in accordance with EN 60529
Protection class:	II subject to correct installation
Operating temperature:	–5 °C ... +45 °C
Load types:	R/L/C
Incandescent and halogen lamp load:	200 W
Compact fluorescent lamps (trailing edge):	200 W
LED lamps (trailing edge):	200 W
Electronic transformers:	200 W
Inductive load:	200 VA
Pollution degree:	2
Rated impulse voltage:	4 kV
Permissible load in parallel operation: (trailing edge)	
Incandescent lamp load:	1 x 400 W
Energy-saving lamps:	1 x 400 W
Dimmable 230 V LED lamps:	1 x 400 W
Max. cable cross-section:	2 x 1.5 mm ²
Key / switch connecting cable:	230 V phase-independent
Key / switch cable length:	up to 100 m (NYM, H05/H07, NYIF)
Dimmer load cable length:	up to 100 m
2-wire connection for COM:	any cross-section / length up to 100 m
Dimmer outputs:	per channel: 2 – 200 VA in parallel operation: 2 – 400 VA the outputs are short-circuit proof (indicator )
Short circuit:	
Excess temperature:	monitored with cut-out (indicator )
Automatic detection of R, C loads (trailing edge), as well as L-loads (phase angle)	

Theben AG
Hohenbergstr. 32
72401 Haigerloch
GERMANY
Phone +49 74 74 692-0
Fax: +49 74 74 6 92-150

Service
Phone +49 74 74 692-369
Fax: +49 74 74 692-207
hotline@theben.de

Addresses, telephone numbers etc. at
www.theben.de