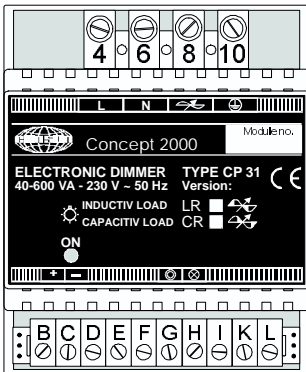# Dimmer module type CP 31

Dimmer module type CP 31LR and CP 31CR

Front light dimmer type CP 31LR
EAN-No. 5703513005757

Rear light dimmer type CP 31CR
EAN-No. 5703513005917

Product description

Dimmer module type CP 31 is an intelligent programmable dimmer unit which is available in 3 different versions:
- Type CP 31LR for dimming of 40-600 VA ohmic and inductive load.
- Type CP 31CR for dimming of 0-600 VA ohmic and capacitive load.
- Type CP 31BC for dimming of HF-ballasts for neon lights with 0-10V control signal.

The dimmer module regulates logarithmically and has built in soft start, thermal fuse, indication of breach on null. Furthermore dimmer module CP 31CR has an electronic short circuit fuse. Dimmer modules can be controlled directly with toggle presses, connected minus (-) and terminal G with the functions: ON, OFF, UP and DOWN. Over the data bud the dimmer module can be controlled by Switch-Link type CP 20 and Remote-Link type CP 70. At operation over the data bus up to 40 programmed functions (see table of functions) can be executed. Bus functions can e.g. be: All of, all on, light group turn on/off (at a fixed level), various light requirements, "Sleep timer" with a fixed light level etc.. Parallel operation via the data bus can also be used, when more dimmer modules are included in a light switch due the load. Programming of functions in the module is carried out with CONKEY type CP 79 or a PC, see section on this.

In addition, the module contains a light diode, and an indication output, which indicates whether the module is turned on or off - the output must maximum be loaded with 75mA.

11.08.97

Control options of dimmer module:
- Touch control via direct toggle input (1 press)
- Light requirements via Link-modules
- Parallel control via Linkmodules(on,off,up,down)
- "Sleep timer"- function (time functions)
- Light group turn on/off (with a fixed level)
- All on/ All off - and much more

Light requirements   4 light position with 4 pcs.
Dimmer modules type CP 31

	DINING TABLE	WALL	CEI-LING	COFFEE TABLE
ON/OFF *DAILY*	■	■	■	■
Light scene 1 *COSINESS*	■	■	■	■
Light scene 2 *GUESTS*	■	■	■	■
Light scene 3 *TELEVISION*	▬	■	■	■
Light scene 4 *CLEANING*	■	■	■	■
ALL OFF	▬	▬	▬	▬

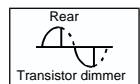## Load types for dimmer module CP 31:

Type CP 31LR:
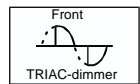
Leadingedge lightdimmer 40-600VA for ohmic and inductive load **(TRIAC)**

L = Inductive load:
- Traditional transformers for low-volt halogen lamps
- Electronic transformers (for front) for low-volt halogen lamps.

R = Ohmic load:
- Glow lamps
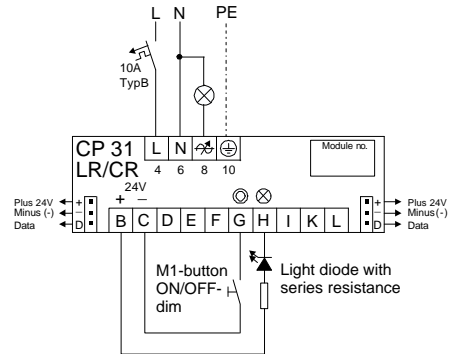- 230V halogen lamps

Type CP 31CR:

Trailingedge light dimmer 0-600VA for ohmic and capacitive load **(TRANSISTOR)**

C = Capacitive load:
- Electronic transformers (for rear) for low-volt halogen lamps

R = Ohmic load:
- Glow lamps
- 230V halogen lamps

Connection of dimmer module CP 31LR+CR

Terminals type CP 31LR/CR:

Mains current   Symbol

Terminal 4	L	Phase input
Terminal 6	N	Ground
Terminal 8	⌁	Regulated phase
Terminal 10	⏚	Protective conductor

Low current

Terminal B	+	Plus 24V DC
Terminal C	-	Minus (-)
Terminal G	◎	Toggle input (-)
Terminal H	⊗	Light diode output (-)

The terminals **D,E,F,I,K** and **L** have no function.

Technical data dimmer module CP 31:

Mains current:
Type CP 31LR
Load ohmic+inductive max.	40-600 VA
Power loss	< 1%

Type CP 31CR
Load ohmic+capacitve max.	0-600 VA
Power loss	ca. 6W ved 600VA

Common data all CP 31:
Voltage	230V AC/50 Hz
Coupling-in time (soft start)	500 ms
Coupling-out time	750 ms
Fuses (disconnect characterisation B)	max.10 A

Low current CP 31LR and CP 31CR:
Current at 18 V DC max.	30 mA
Power consumption at 18 V DC max.	**0,5 VA**

Common data for all CP 31:
Indication outputs	max. 75 mA
Current all presses	0.5 mA
Impulse time for toggle press	50-300 ms
Cable dimension low currente.g.	0.6 mm
Cable length pr. input	R max. 1 K-ohm

Dimmer module type CP 31BC
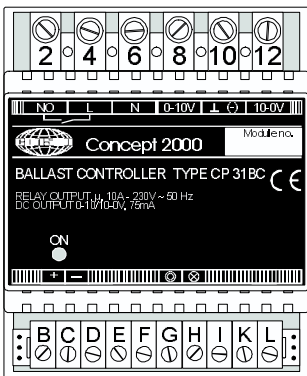
Ballast controller type CP 31BC
EAN-No. 5703513006143

Ballast controller Type CP 31BC:

0-10V output:
• Electronics for neon lights or other electronic components with similar control input.
10-0V output:
• Conson´s large light dimmers type G and GLC.

Terminals type CP 31BC:

Main current	Symbol	
Terminal 2	NO	Relay output 10A
Terminal 4	L	Phase input
Terminal 6	N	Ground
Terminal 8	0-10V	Control output 0-10V
Terminal 10	⊥ (-)	Minus (-)
Terminal 12	10-0V	Control output 10-0V

Low current
See front - same connection at CP31LR/CR.

Technical data dimmer module CP 31BC:

Main current
Voltage	max. 230V AC/50 Hz
Relay output	10A/230V ~
Load ohmic - cos phi=1,0	2300 VA
Load inductive - cos phi=0,5	1150 VA
Coupling-in and -out time max.	50 ms
Fuses max.	10 A
Load 0-10V output	max. 75 mA
Load 10-0V output	max. 5 mA

Low current:
Type CP 31 BC
Current at 18 V DC max.	50 mA
Power consumption at 18 V DC max.	**0,9 VA**

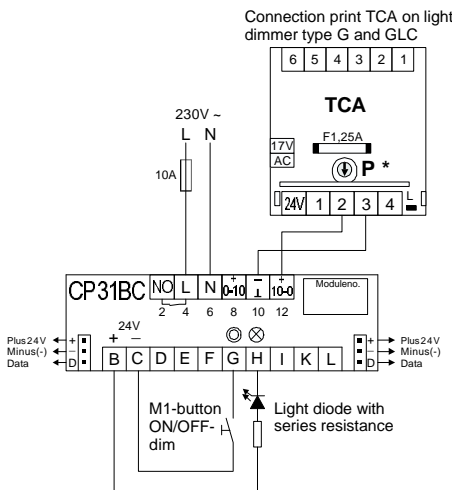**Common data:** see front page

09.08.97

Connection of dimmer module CP 31BC on electronic ballast dimmer with 1-10V
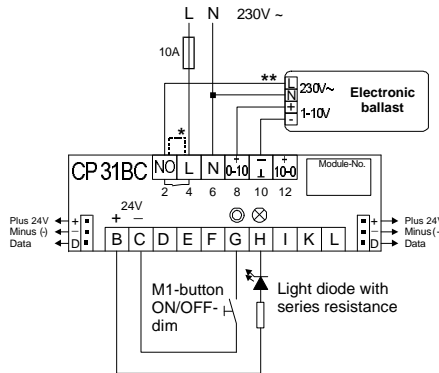
*   **NOTE !** At programming of min. and max. light levels this jumper must be mounted and afterwards removed.
**   At higher loads or 3-phased switch contactors must be used.

Connection of dimmer module CP 31BC on light dimmers type G and GLC

*   **NOTE !** After connection of mains current and the control leads, potentiometer "P" on light dimmers might need to be regulated. Turn off CP 31BC (LED on the module is turned off) and afterwards control that light dimmer type G or GLC is turned off. If the light/output is not turned off, the potentiometer "P" must be turned clockwise until the light/ output turns off.

Installation guide dimmer module CP 31.

Mount the module on the DIN rail and connect the plug between the modules. Via this plug +/- and "data cord" are connected.
Connect mains current to the module, and check the connection before voltage is supplied for the module.

NOTE ! At installation the generation of heat must be considered. Dimmer modules will at to high a   temperature (over 35ºC) turn off and can only be restarted by keeping the M1-button in for 20 sec.

Adjustment of max./min. levels on dimmer module type CP 31:

On dimmer modules it is possible to adjust max.- and minimum light level:
Maximum level, (the highest light level) and minimum level, (the lowest light level).
The adjustment of these levels takes place as follows:
NOTICE! At dimmer module type CP 31BC a jumper must be mounted between terminal 2 (NO) and terminal 4 (L) before adjustment is started. After adjustment the jumper must be removed.
Activate the M1-button (connected terminal G) until the indication diode on the module flashes (about 20 sec. after the dimmer module reaches max. or min. level.).
Max. level: Adjust the light to the wanted max. level and turn off the light on the M1-button.
- All on again.
Min. level: Adjust the light to the wanted min. level and turn off the light on the M1-button.
- Turn on again and wait about 20 sec. Without touching the M1-button. When the light turns off, the max. and min. levels are saved in the memory - also at voltage failure. The last two levels at which the dimmer module was turned off is saved The lowest light level is saved as minimum.

NOTE! Max. and min. must not be placed more close than a small regulations area is still left between the levels. The max. and min. levels are cancelled, if the two levels come too close to each other and the programming is reset.

Mechanical data dimmer module CP 31:
Temperature range	-5º......+35ºC
Installation for building in	
Isolation	4KV > 8 mm
Insulation	DIN 40050
DIN rail symmetric	DIN 46277
Dimensions (H x W x D)	85x70x76 mm
Weight CP 31LR	295 g
Weight CP 31CR	255 g
Weight CP 31BC	195 g

Sensors / operation units

Dimmer modules
Type CP 31LR   **Type CP 31CR**   **Type CP 31BC**

Front	Rear	Control signal
TRIAC-dimmer	Transistor dimmer	**0-10V** Low current control

R + L	R + C	HF
Glow lamps and conv. transformers	Glow lamps and electr. transformers	Electronic ballasts for fluorescent tubes

R = Ohmic load:
- Glow lamps
- 230V halogen lamps

L = Inductive load:
- Traditional transformers for low-volt halogen lamps
- Electronic transformers for low-volt halogen lamps
- For direct dimming of neon lights and Compact neon lights regulation area limited.

C = Capacitive load:
- Electronic transformers for low-volt halogen lamps

Advantages:
- Robust triac for high values of current
- For ohmic and inductive load

Disadvantages:
- No electronic short circuit fuse
- Acoustic noise due to noise coil
- Not for capacitive loads

Light sources:
- Ohmic and inductive

Advantages:
- Soft start
- Electronic short Circuit fuse
- Minimal Acoustic noise
- For ohmic and capacitive load

Disadvantages:
- Not for inductive load without extra kondensator

Light sources:
- Ohmic and capacitive

Advantages:
- Less energy consumption
- Flash-free start
- Longer life for neon lights
- No stroboscope effect
- Stabile light
- No mechanical noise
- Soft start

Disadvantages:
- Life
- Price

Light sources:
- Neon lights and Compact neon lights

1) Dimming is not recommended due to colour reproduction

Glow lamps	230V halogen lamps	Low-volt halogen lamps	Low-energy bulbs	Compact neon lights	Neon lights	Metal halogen lampes 1)	High-pressure sodium lamps 1)

09.08.97

Dimmer module type CP 31

Application example:

The diagram below shows application examples for light control of a front room in a house. The Front room has 3 switches with dimmer module type CP 31 (LR/CR or BC) which can be controlled individually with Touch function on, off + dimming ("stand alone") and general control with signals from Switch-Link type CP 20 (central control, light requirements etc.) and BO-Link type CP 70B (remote control with B&O´s remote controls).

Power supply type CP 11
24V DC - 17VA

L   N   PE

10A

| CP 11 | 4 | ⊠ | 8 | 10 | Module no. 1 |

230V
24VOLT

| + D | | C | D | E | | H | I | K | | + D |
| + + + | | | − − − |

Switch-Link type CP 20
Programmable Commander,
transmits 8 inputs/channels
on the data bus, max. 4 pcs. CP 20
pr. data string (equal to 32 channels)

| CP20 | | | | Module no. 2 |

24V
Input 1 2 3 4 5 6 7 8

| + D | | B | C | D | E | F | G | H | I | K | L | | + D |

BO-Link type CP 70B
For remote control with B&O´s
remote control, transmits 8 channels
on the data bus, max. 4 pcs. CP 70B
pr. data string (equal to 32 channels)

| CP70B | L | 1 | 2 | 3 | 4 | L | Module no. 3 |

24V
∑   +5V   OUTPUT

| + D | | B | C | D | E | F | G | H | I | K | L | | + D |

Plus (+)
24V DC
Minus (−)
Data

Type CP 2509 connected
for mode 1 - symbol mode

3

AO1: All off -press at main entrance
PO1: Partly off-press in the bedroom
(SD1 turns off all light except light in bedroom)

Touch button panel in the Front room:
Touch button panel type CP 2506 with 5 presses+Sesam function
1 press for light group on/off (centre button) and 4 presses for activation of light requirements.

AO1   PO1
7

HYGGE / GÆSTER / Grp / CLEAN / TV

IR-eye in the Front room:
Type CP 2509

remote

Bus extension cord 25cm type CP 09

"Stand alone": 3 switches in the front room with 3 pcs. Dimmer modules type CP 31 with Touch control (on/off+dimming) via direct toggle inputs. Generally controlled by Link modules.

L   N
LIGHT Dining table
10A   ⊗

| CP 31 | L | N | | Module no. 4 |

24V
⊚ ⊗

| + D | | B | C | D | E | F | G | H | I | K | | + D |

If necessary
toggle press
for Touch control

L   N
LIGHT Wall+Ceiling
10A   ⊗

| CP31 | L | N | | Module no. 5 |

24V
⊚ ⊗

| + D | | B | C | D | E | F | G | H | I | K | | + D |

If necessary
toggle press
for Touch control

L   N
LIGHT Coffee table
10A   ⊗

| CP31 | L | N | | Module no. 6 |

24V
⊚ ⊗

| + D | | B | C | D | E | F | G | H | I | K | | + D |

If necessary
toggle press
for Touch control

Bus extension cord type CP 09 (Plus, minus, and data) for other modules in the system

2 5 / 1 / 3 4

Front room:
If direct "Touch" control is required, touch button panel type CP 2505 can with 5 presses be used, so press 1 (the centre button) control dimmer module no. 4, press 2+5 control dimmer module no. 5 and press 3+4 control dimmer module no. 6.

09.08.97

Dimmer module type CP 31

Application example: Function

The table below shows bus signals from Switch-Link type CP 20 and BO-Link type CP 70B which will be transmitted on the data bus to active modules (dimmer module no. 4, 5 and 6). In the table, touch button panel and button on Beo4 (via CP 70B) remote control are stated, which activate the programmed functions in the dimmer modules..

General touch button control			Remote control		"CP-BUS" function dimmer modules CP 31 module no. 4, 5, and 6					
TOUCH BUTTON	Position	CP 20 Channel no.	Symbol on Beo4 remote control	CP 70B Channel no.	CP 31 Module no. 4 Light level	Function	CP 31 Module no. 5 Light level	Function	CP 31 Module no. 6 Light level	Function
ALL OFF	Main entrance	**1**	-	-	🔦	⌐_	🔦	⌐_	🔦	⌐_
ON/OFF **DAILY**	Front room - button 1 Type CP 2506	**2**	GO	**2**	🔦	⌐_Π	🔦	⌐_Π	🔦	⌐_Π
Light scene 1 **COSINESS**	Front room - button 2 Type CP 2506	**3**	◆	**3**	🔦	_Γ	🔦	_Γ	🔦	_Γ
Light scene 2 **GUESTS**	Front room - button 3 Type CP 2506	**4**	◆	**4**	🔦	_Γ	🔦	_Γ	🔦	_Γ
Light scene 3 **TELEVISION**	Front room - button 4 Type CP 2506	**5**	◆	**5**	🔦	_Γ	🔦	_Γ	🔦	_Γ
Light scene 4 **CLEANING**	Front room - button 5 Type CP 2506	**6**	◆	**6**	🔦	_Γ	🔦	_Γ	🔦	_Γ
-	-	-	STOP	**1**	🔦	⌐_	🔦	⌐_	🔦	⌐_
PARTLY OFF	Bedroom	**7**	-	-	🔦	⌐_	🔦	⌐_	🔦	⌐_

Explanation of symbols: 🔦 Light position/light level   🔦 Light position off   _Γ ON   ⌐_ OFF   ⌐_Π ON/OFF-alternately
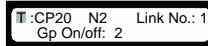
Application example: Programming

Setting/programming of the system's modules in the menu pictures on the programming key CONKEY type CP 79 is shown below.
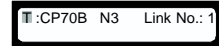
Power supply type CP 11 module no. 1
CP 11 is not programmable !

```
T :CP11   N1
Not programmable
```
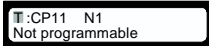
Switch-Link type CP 20 module no. 2
8 inputs/channels - programmable

```
T :CP20   N2      Link No.: 1
Gp On/off: 2
```

BO-Link type CP 70B module no. 3
Remote control with B&O remote control - 8

```
T :CP70B  N3      Link No.: 1
```

Dimmer module type CP 31 module no. 4
Programmable with 40 bus functions

```
T :CP31 N4 F1   L: SW -1
R- A:Off        C:1- - - - -7-
```
```
T :CP31 N4 F8   L: BO -1
R- A:Aux relay  C:-2- - - - -
```
```
T :CP31 N4 F2   L: SW -1
R- A:Aux relay  C:-2- - - - -
```
```
T :CP31 N4 F9   L: BO -1
R- A:Light 90%  C:-2- - - - -
```
```
T :CP31 N4 F3   L: SW -1
R- A:Light 90%  C:- -3- - - -
```
```
T :CP31 N4 F10  L: BO -1
R- A:Light 40%  C:- -3- - - -
```
```
T :CP31 N4 F4   L: SW -1
R- A:Light 40%  C:- - -4- - -
```
```
T :CP31 N4 F11  L: BO -1
R- A:Light 80%  C:- - -4- - -
```
```
T :CP31 N4 F5   L: SW -1
R- A:Light 80%  C:- - - -5- -
```
```
T :CP31 N4 F12  L: BO -1
R- A:Light 20%  C:- - - -5- -
```
```
T :CP31 N4 F6   L: SW -1
R- A:Light 20%  C:- - - - -6-
```
```
T :CP31 N4 F13  L: BO -1
R- A:Light 100% C:- - - - -6-
```
```
T :CP31 N4 F7   L: SW -1
R- A:Light 100% C:- - - - - -7
```
```
T :CP31 N4 F14  L: BO -1
R- A:Off        C:1- - - - - -
```

Dimmer module type CP 31 module no. 5
Programmable with 40 bus functions

```
T :CP31 N5 F1   L: SW -1
R- A:Off        C:1- - - - -7-
```
```
T :CP31 N5 F8   L: BO -1
R- A:Aux relay  C:-2- - - - -
```
```
T :CP31 N5 F2   L: SW -1
R- A:Aux relay  C:-2- - - - -
```
```
T :CP31 N5 F9   L: BO -1
R- A:ight 40%   C:-2- - - - -
```
```
T :CP31 N5 F3   L: SW -1
R- A:Light 40%  C:- -3- - - -
```
```
T :CP31 N5 F10  L: BO -1
R- A:Light 20%  C:- -3- - - -
```
```
T :CP31 N5 F4   L: SW -1
R- A:Light 20%  C:- - -4- - -
```
```
T :CP31 N5 F11  L: BO -1
R- A:Light 70%  C:- - -4- - -
```
```
T :CP31 N5 F5   L: SW -1
R- A:Light 70%  C:- - - -5- -
```
```
T :CP31 N5 F12  L: BO -1
R- A:Light 40%  C:- - - -5- -
```
```
T :CP31 N5 F6   L: SW -1
R- A:Light 40%  C:- - - - -6-
```
```
T :CP31 N5 F13  L: BO -1
R- A:Light 100% C:- - - - -6-
```
```
T :CP31 N5 F7   L: SW -1
R- A:Light 100% C:- - - - - -7
```
```
T :CP31 N5 F14  L: BO -1
R- A:Off        C:1- - - - - -
```

Dimmer module type CP 31 module no. 6
Programmable with 40 bus functions

```
T :CP31 N6 F1   L: SW -1
R- A:Off        C:1- - - - -7-
```
```
T :CP31 N6 F14  L: BO -1
R- A:Off        C:1- - - - - -
```
```
T :CP31 N6 F2   L: SW -1
R- A:Aux relay  C:-2- - - - -
```
```
T :CP31 N6 F8   L: BO -1
R- A:Aux relay  C:-2- - - - -
```
```
T :CP31 N6 F3   L: SW -1
R- A:Light 60%  C:- -3- - - -
```
```
T :CP31 N6 F9   L: BO -1
R- A:Light 60%  C:-2- - - - -
```
```
T :CP31 N6 F4   L: SW -1
R- A:Light 30%  C:- - -4- - -
```
```
T :CP31 N6 F10  L: BO -1
R- A:Light 30%  C:- -3- - - -
```
```
T :CP31 N6 F5   L: SW -1
R- A:Light 50%  C:- - - -5- -
```
```
T :CP31 N6 F11  L: BO -1
R- A:Light 50%  C:- - - -4- -
```
```
T :CP31 N6 F6   L: SW -1
R- A:Light 10%  C:- - - - -6-
```
```
T :CP31 N6 F12  L: BO -1
R- A:Light 10%  C:- - - -5- -
```
```
T :CP31 N6 F7   L: SW -1
R- A:Light 100% C:- - - - - -7
```
```
T :CP31 N6 F13  L: BO -1
R- A:Light 100% C:- - - - -6-
```

09.08.97

Dimmer module type CP 31

Control options of dimmer module type CP 31 via the data bus:

Action via CP-Bus	LCD-Display
Switch on	On
Switch off	Off
Toggle function (on/off,dim)	Impulse
On for 15 seconds	On 5 s
On for 30 seconds	On 30 s
On for 45 seconds	On 45 s
On for 1 minute	On 1 m
On for 5 minutes	On 5 m
On for 15 minutes	On 15 m
On for 20 minutes	On 20 m
On for 30 minutes	On 30 m
On for 45 minutes	On 45 m
On for 60 minutes	On 60 m
Off after 15 seconds	Off > 15 s
Off after 30 seconds	Off > 30 s
Off after 60 seconds	Off > 60 s
Off after 5 minutes	Off > 5 m
Off after 15 minutes	Off > 15 m
Off after 30 minutes	Off > 30 m
Off after 60 minutes	Off > 60 m
Blocking (Bus+toggle input)	Block
Help relay function *	Aux relay
Increase lighting	Light up
Reduce lighting	Light down
Light level 10%	Light 10%
Light level 20%	Light 20%
Light level 30%	Light 30%
Light level 40%	Light 40%
Light level 50%	Light 50%
Light level 60%	Light 60%
Light level 70%	Light 70%
Light level 80%	Light 80%
Light level 90%	Light 90%
Light level 100%	Light 100%

* NOTE! Help relay function is also used at light group turn on/off. Control input on Switch-Link type CP 20, which control light group must be programmed with Grp. Turn on/off. Light group turn on/off can also be combined with a light level - se programming example.

```
T:CP20  N2      Link No.: 1
 Gp On/off:              8
```

```
T:CP31  N9  F3    L: SW -1      T:CP31  N9  F4    L: SW -1
R- A:Aux relay C:- - - - - - 8   R- A:Light 80% C:- - - - - - 8
```

Manufacture setting of dimmer module CP 31:

```
T:CP31  N3  F1    L: SW -1      T:CP31  N3  F2    L: SW -1
R- A: Off     C:1 - - - - - -    R- A: On     C:-2- - - - - -
```

09.08.97

APPLICATION:
The approaching description of our intelligent dimmer module type CP 31 only gives a small insight into the many possibilities this light dimmer offers. Compare it with other light dimmers on the market - We set the standard!.

Dimmer module CP 31:
3 different hardware versions:
· CP 31LR for ohmic and inductive load
· CP 31CR for ohmic and capacitive load
· CP 31BC for 0-10 / 10-0 volt control

Advantages dimmer module CP 31:
· Short circuit safe (version CR)
· Protected against overload (long life)
· No fuses that have to be changed
· 10 light levels - used for light requirements
· Timer function - used for "Sleep"-function
· Touch-control - turn on/off up/down
· Indication - for monitor panels/touch buttons
· Battery backup - for the next 1000 years
· "Stand alone" - most important of all (Reliability)
There are more advantages - which we think - you should discover yourself.
The subsequently text will give you some inspiration:

"Sleep timer": A press on the touch button "sleep timer" in e.g. the nursery turns on the light on 30-50% light and turns off automatically after 30 minutes when the children have fallen to sleep.

"Sleep control": A press on the touch button "sleep control" turns on the light on e.g. 10% light and turns off automatically after 15 seconds.

"Everyday light": Pleasant and energy saving lighting in the home.

"Guests": The right and predetermined light requirement in the entire house when the guests arrive. It should not just be a well-laid table and good food that is served. The candles and the "artificial lights" including the outdoor lights must make the atmosphere.

"Television light": A sharp picture with an anti-dazzle lighting - and the curtains drawn.

"Cosiness": A Danish tradition which demands the right lighting atmosphere in the entire house.

"Cleaning": A must which demands 100% light.

"Up at night": The touch button is placed next to the bed - some will say it is luxury, but it is very comfortable. A single press and the light is turned on, on 10% in the bedroom, 50% in the corridor and 90% in the bathroom. When you return to the bed the light is automatically turned off after you.

"Back home": It is enough to press on a button, and have the light turned on which you need when you get back home.

"Go to bed": The touch button is placed at the bed and turns off all light, except the light in the bedroom.

"Party": A emotional lighting when you are having a party. At the same time you can block the touch buttons in the house, so "busybodies" do not have a chance.

"Outdoor lighting": Normally you turn on the outdoor lighting on 100% when it gets dark outside. With Conson´s intelligent light dimmer you can control the light at different light levels, dependent on, whether there are people outside. Example: When it gets dark the light turns on, on 70% in the period from 16^{00} to 20^{00} and from 20^{00} to 24^{00} it is reduced to 30%. If there are people outside the light is automatically increased to 100% for 5 minutes.

"Imitated habitation": (protection against burglary)
Conson has had an imitated habitation in the programme for 17 years, but now it is possible to turn on the different light positions with different light levels, which are adjusted to your needs.

With Conson you always have the right level of lighting !

Lighting makes interior...
...Conson makes atmosphere!