CONCEPT 2000

LightDimmer CP31

Sensors / operation

| CP31LR | CP31CR | CP31BC / DD |

CP31LR

Leading edge

R-L

TRIAC-dimmer

CP31CR

Trailing edge

R-C

Transistor-dimmer

CP31BC / DD

Controlsignal

0-10V

0-10V
And DSI/Dali

R + L

Glowing lamps and
conv. transformers

R + C

230V / 12V

Glowing lamps and
electr. transformers

HF

Electr. forkoblinger for
light tubes or transform.

R = Ohmic load:
• Glowing lamps
• 230V halogen lamps

L = Inductiv load:
• Traditional transformers
  for low-volt halogenlamps
• Electronic transformers
  (leading edge) for low-volt
  halogen lamps
• HF-forkoblinger for direkte
  dæmpning af lysstofrør og
  kompaktlysstofrør regulerings-
  område begrænset, kræver
  ohmsk grundlastmodstand

C = Capacitive load:
• Electronic transformers
  (trailing edge) for low-volt
  halogen lamps.

Advantages:
• Softstart
• Triac for high
  currents
• For ohmic and
  inductive load

Disadvantages:
• No electronic
  shortcircuit fuse
• Acustic sounds
  from noise
  reduction coil
• Not for capacitive
  loads

Light sources:
• Ohmic and
  inductive

Advantages:
• Softstart
• Electronic short-
  fuse
• Minimal acustic
  noise
• For ohmic and
  capacitive load

Disadvantages:
• Not for inductive
  load without extra
  capacitor

Light sources:
• Ohmic and
  capacitive

Advantages:
• Less energi consumption
• Blinckfree start
• Longer lifetime of
  light tubes
• No stroboscope effect
• Stabil light
• No mechanical noise
• Softstart

Disadvantages:
• Price

Lightsources:
• Light tubes og
  compact light tubes

1) Dæmpning
anbefales ikke, p.g.a.
dårlig farvegengivelse

Glowing lamps	230V halogen lamps	Low-volt halogen lamps	Low energi bulbs	Compact-light tubes	Light tubes	Metal-halogen lamps 1)	High press. natrium lamps 1)

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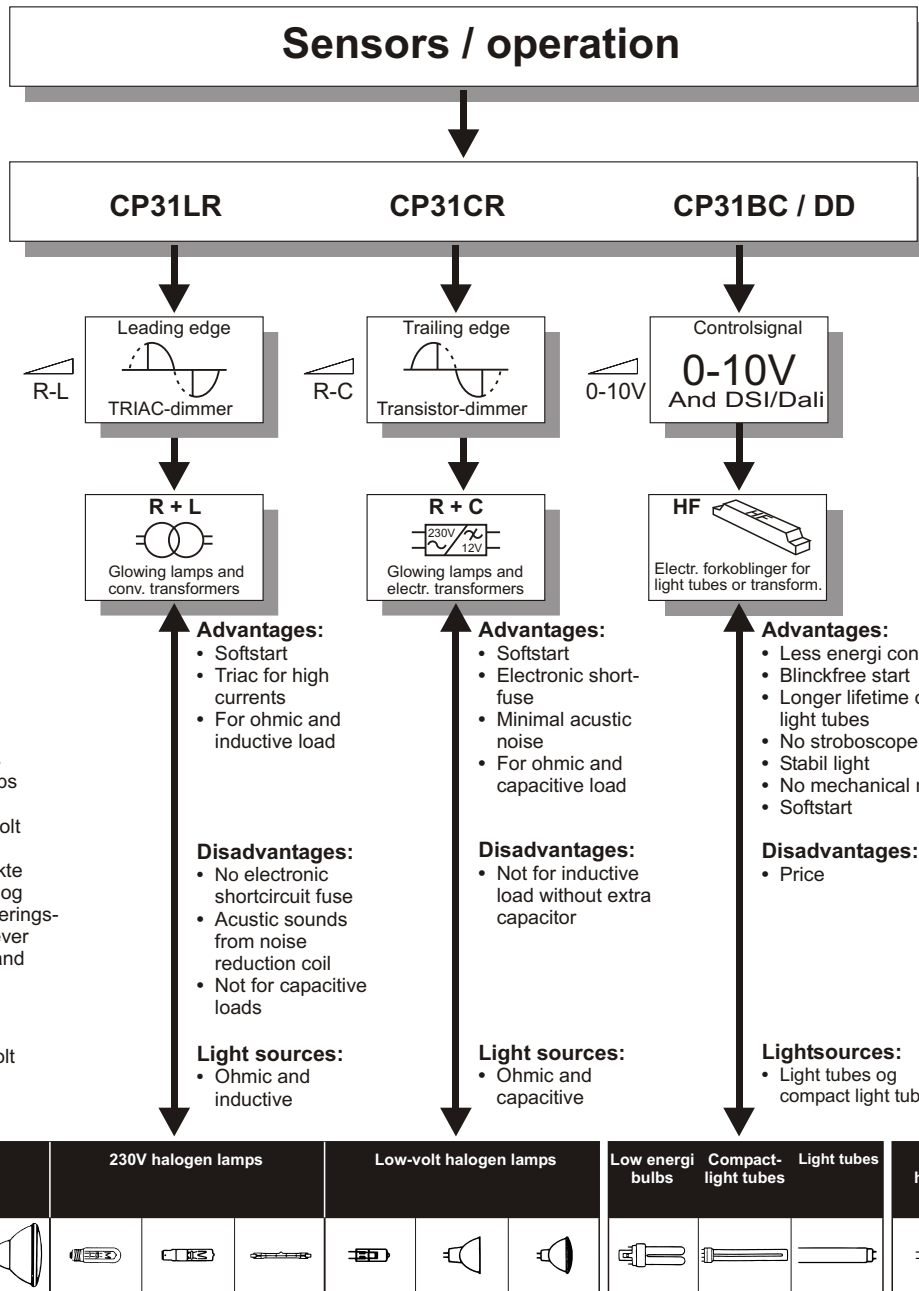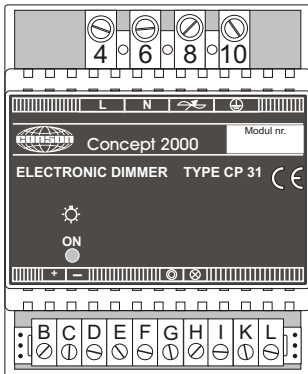
## LightDimmer CP31

LightDimmer CP31LR and CP31CR

Leading edge CP31LR
EAN-Nr. 5703513005757
Trailing edge CP31CR
EAN-Nr. 5703513005917
Load controller CP31BC
EAN-Nr. 5703513006143

Product description

CP31xx is an intelligent programmable light dimmer unit available in 3 versions:
- CP31LR for dimming of 40-1000 VA ohmic and inductive load.
- CP31CR for dimming of 40-600 VA ohmic and capacitive load.
- CP31BC for dimming of HF-loads for light tubes using 0-10V control signals.

CP31xx regulates logaritmically and has built-in softstart, termical fuse and null-wire failure detection. In addition CP31CR has a electronic short fuse. The lightdimmer is controlled by a switch connected to input G offering:
ON, OFF, UP and DOWN.
Operation over the databus controls up to 40 built-in functions, as for example: All Off, All On, Group Off, Group On (fixed light level), light scenes, Sleep timer, etc. Parallel operation via databus allows control of multiple CP31's.
Programming of functions is carried out with CONKEY CP79 or a PC.
CP31 holds a 75 ma indicator output reflecting whether module is On or Off.

Connecting CP31LR, CP31CR and CP31BC
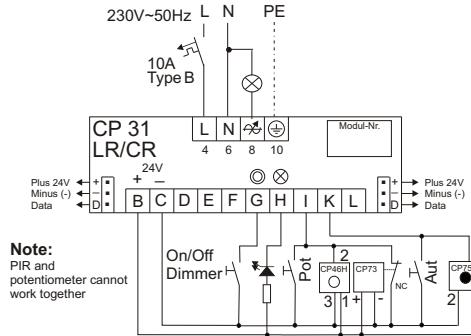
Note:
PIR and potentiometer cannot work together

Connections for CP31LR/CR:

High voltage	Symbol	
Pin 4	L	Phase input
Pin 6	N	Null
Pin 8	✂	Regulated phase
Pin 10	⏚	Ground

Low voltage for CP31LR/CR/BC

Pin B	+	Plus 24V DC
Pin C	-	Minus (-)
Pin D-E-F		See page 5.29
Pin G	◎	Impulse input (-)
Pin H	⊗	indicator output (-)
Pin I	I	PIR/potentiometer
Pin K	K	Daylightsensor
Pin L	L	Conversation

Technical data CP31xx:

High voltage:
CP31LR
Load 220V AC/50Hz		40-1000 VA
Load 110V AC/60Hz *		40-500 VA
Power loss		< 1%

CP31CR
Load 220V AC/50Hz		40-600 VA
Load 110V AC60Hz *		40-300 VA
Power loss		< 1%

Low current CP31LR og CP31CR:
Curr. consumption @ 18 V DC max.		30 mA
Power consumption @ 18 V DC max.		0,5 VA

Common data for CP31xx:
Mains	230V AC/50 Hz
Softstart	500 ms
discontinuation time	<300 ms
Fuse (type B)	max.10 A
Indications output	max. 75 mA
Curr. consumption switch	0.5 mA
Impulse time for switch	50-300 ms
Cable dimension low current	f.ex 0.6 mm
Cable length pr. input	R max. 1 K-ohm

* Special version

Lightdimmer (Type G - GLC)
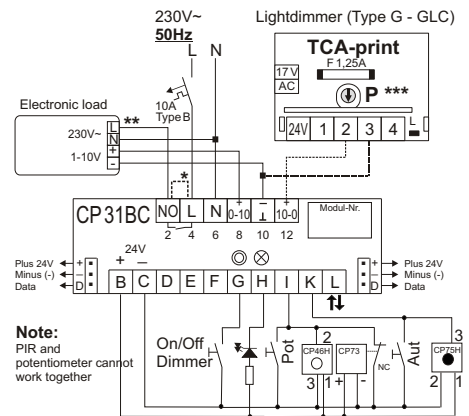
Note:
PIR and potentiometer cannot work together

*   **Note !** When programming min/max light levels, the short cut is fitted and then removed when programming is done.

**   At higher loads or at 3-phase control use a contactor with an RC across coil.

*** After applying high current and control-wires, the potentiometer "P" must be regulated. Turn off CP31BC and that lightdimmer type G eller GLC are off. If light is not off the potentiometer "P" is turned clockwise untill light turns off.

Connections for CP31BC

High voltage	Symbol	
Pin 2	NO	Relay output 10A
Pin 4	L	Phase input
Pin 6	N	Null
Pin 8	0-10V	Output 0-10V
Pin 10	⊥	Minus (-)
Pin 12	10-0V	Output 10-0V

Technical data for CP31BC

High voltage
Mains	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
In- and out time max.	50 ms
Fuse max.	10 A
Load 0-10V output	max. 75 mA
Load 10-0V output	max. 5 mA

Low voltage for CP31 BC
Curr. consumption @ 18 V DC max.	50 mA
Power consumption @ 18 V DC max.	**0,9 VA**

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LightDimmer CP31

	Dinner Table	Wall	Ceiling	Coffee Table
ON/OFF *DAYLI*	70%	50%	50%	10%
Lysscene 1 **RELAX**	40%	20%	40%	20%
Lysscene 2 **GUESTS**	50%	80%	60%	40%
Lysscene 3 **TV**	10%	40%	30%	40%
Lysscene 4 **CLEANING**	100%	100%	100%	100%
ALL OFF	0%	0%	0%	0%

Morning   Noon   Evening

Free daylight = electricity saved

Sky

sun-light

The preferred light quantity

Artificial light= electricity paid for

Pay only for the necessary light quantity

Module room nr. 1 **

Module room nr. 2 **

A

$t_m(\%)$

400

200

100

Average lifetime

50

25

90   95   100   105   110 $U_n(\%)$

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Aemployment examples/ energy saving

Create the right atmosphere with light scenes
A single push on the button can create the right lighting.
For instance, you can have buttons for:
Daily   - The luminous, whitch you prefewhen entering the room.
Guests   - Dim light different levels - more light over the dinner table.
Comfortable-Dim light where a few things are in focus.
TV   - Blinds are closed and the light is being dimmee in order not to daze.
**Cleaning**   -100% light
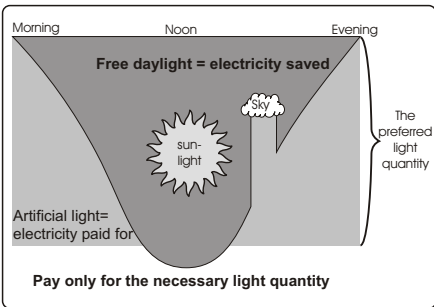
Daylight controlling.
The curve shows how many hours it is possible to save on artificial light. Pay only for the necessary light quantity.
The sun is a great light source, which varies over the day, it makes a 180 degrees journey and has different attitude depending on the season. Therefore , you have to make demands on method of control and sensorss as well as their position. CP31XX is fit with an entry point for a daylight sensor in such a way that you can control the light during the daytime.
CP31xx regulates the artificial light as to much daylight there is. (The daylight sensor must "see"
50% daylight and 50% artificial light)**.**
The goldsmith wishes a lot of light during the day and a more dimmed lighting in the evening in his show window. This kind of lighting optimizes the customers' perception of a display.
Day lighting and evening lighting at a service station make a demand for accommodation to daylight aiming at creating as little contrast between inside and outside. This happens by means of reverse day lighting. (Daylight sensor shall only "see" daylight)
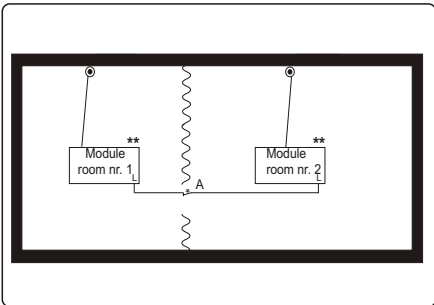
Connecting dimmers and ballast controller
Conson has developed dimmer and ballast controllers in such a way that up to 10 dimmers/ballast controllers can controlled together. This function may be applied seveal plases.

For instance:
Large rooms which by means of folding doors can be divided up into smaller rooms. In rooms or halls in which the load is too great for one dimmer/ballast controller the load can be divided between several dimmer in such a way that these may be connected permanently by connecting the "L'' Clamps.

NB ! The connection of dimmers/ballast controllers must only be done at the side with low current. The regulating phases or outputs MUST NOT be connected.
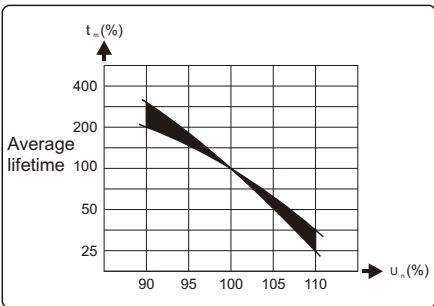
Life time of incandescent lamps
As it is seen from this graph, it pays to dim the light. If the nominal mains voltage is lowered by 5 to 10%, most light sources average life time will double immediately. Tis reduction also results in less heat emission reducing the demand for air condition.

General - need - economy
Without doubt, there is economy in light controlling and light dimming. How much depends on the individual installation. We have seen payback times from six to four years but it completely depends on the arrangement of the room and its condition. Contact your electrician and remember that you get 'light' experiences when using less energy. Put a damper on the electricity bill.

CONCEPT 2000

LightDimmer CP31

Employment
The following description of our intelligent dimmer module CP31xx only gives a small insight into the many possibilities offered by these dimmers. Compared to other dimmers at the market Conson set the standard
Dimmers module Cp31xx
- Three different hardware versions:
- CP31LR for ohmic and inductive load
- CP31CR for ohmic and capacitive load
- CP31BC for 0-10 / 10-0 volt's control
- CP31DD for digital protocol
Advantages of dimmer modules CP31xx:
-Short-circuit fuse (version CR)
-Overload protection (Long useful life)
-No fuse to be changed
-10 light levels – different luminous intensities
-Timer function – sleep function
-Touch-control – on/off, up/down
-Indication – for lay-out panel/buttons
-Battery backup – for the next 1000 years
-Advanced automatic control – simple regulation
-Soft start with high starting current
-Thermal protection with too high temperatures
-Both dimmers and ballast controllers can be connected in a simple way
-Logarithmic dimming with a single touch -Protection against zero disconnection
-Fade times

"Sleep timer": For instance, one push at the 'sleep timer' button turns on the light at 30-50% light and automatically turns of the light after 30 minutes when the children has fallen to sleep.
"Sleep control": One push at the 'sleep control' button turns on the light at for instance 10% light and automatically turns of the light after 15 seconds.
"Everyday light": Comfortable and energy-saving light in the house.
"Guests": The right and predetermined luminous intensity in the whole house when the guests arrive. Not only does the table have to look nice and food taste good, candle lights and artificial light including the lamps outside have to create the right atmosphere.
"TV": A clear pictures with a non-dazzling light – and with the curtains drawn.
"Comfortable": Feeling pleasant and comfortable make a demand for the right light

atmosphere.
"Cleaning": A must which demands 100% light.
"Up at night": The button next to the bed – some might call it a luxury but still very pleasant. A single push and the light is turned on at 10% in the bedroom, 50% in the hallway and 90% in the bathroom. When go back to bed, the light will automatically be turn off.
"Getting home": Just push one button and turn on the light you need when you get home."Going to bed": The button is placed next to the bed and turn off all the light in the house except the light in the bedroom.
"Party": Evocative light when you are having a party. At the same time, you can block the buttons all over the house in order to avoid anyone fiddling with the buttons.
"Outside lightning": Normally, you would turn on the outside lightning at a 100% when it gets dark outside. With Conson's intelligent dimmers you can control the light at different luminous intensities depending on whether a person is outside or not.
Example: When it gets dark, from 4 pm to 8 pm, the light turns on at 70% and from 8 pm to midnight, the luminous intensity is 30%. If a person walks by, the light will automatically increase to 100% in five minutes.
"Imitated activity": (Protection against burglars) Now, it is possible to turn on various lamps at different intensities which is suited to your needs.
"Delayed turn off": If you have a centrally placed lay-out panel or a 'turn off everything' button you will be able to make a delay (turn off >60 seconds). You will then have 60 seconds to get to the door before the light turns off.
"Memory": (Turn on, turn on in ? time and change-over) The dimmer turns on at the level last used. If the M1 (change-over) button has not been activated within 20 seconds the next function is to adjust the light up (a long push).

Control possibilities of the dimmer module Cp31 via the data bus:

Aktion via CP-Bus	LCD-Display
ON	ON
OFF	Sluk
Pulse (on/off,dim) **	Pulse
ON for 15 seconds	ON 15 s
ON for 30 seconds	ON 30 s
ON for 45 seconds	ON 45 s
ON for 1 Minutes	ON 1 m
ON for 5 Minutes	ON 5 m
ON for 10 Minutes	ON 10 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+kipindgang)	Block
Auxiliary relay function *	Aux
Light level up **	Light up
Light level down **	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%	Lys 90%
Light level 100%	Light 100%
Fade 5 seconds	Fade 5 s
Fade 10 seconds	Fade 10 s
Fade 20 seconds	Fade 20 s
Fade 30 seconds	Fade 30 s
Fade 1 Minutes	Fade 1 m
Fade 5 Minutes	Fade 5 m
Fade 15 Minutes	Fade 15 m
Fade 2 Timer	Fade 2 T
Daylight control	AUT
Inverted daylight control	AUT Inv
Potentiometer control	Pot

* Auxiliary relay function is employed with special functions for instance Group Turn on/off (see CP20), twilight relay (see CP70D).

** With 'L' communication (meaning no short between clamps 'E' and 'L') "toggle /M1" functions as Turn on/off, "light up" as Turn on and "light down" as Turn off.

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LightDimmer CP31

Installation of dimming module CP31xx
Clip the module on the DIN rail and connect the connection wires to the modules. The plus/minus lines and "data line" are connected through this wire. Connect high voltage to the module and control the connection before turning on the power.
NOTE: Regard the heat development when mounting the module. It is important to ensure good ventilation in the switchboard as temperatures above 35° Celsius may cause the dimmer to switch off. If this occurs, the module's LED flashes the SOS signal (three short, three long and three short flashes). Reset the light dimmer by push and holding the M1-button (clamp G) for 20s, and then the dimmer can be restarted. Until the cause for switching off is found, it is possible to turn down the light to 30% to avoid the dimmer from switching off again. It is not possible to permanently overload a light dimmer with eg 10% and then believe that it is enough to turn down the light intensity by 10%. The light dimmer will switch off after some time. With inductive load, we recommend to reduce the power consumption by 10% due to loss in the transformers.
Normaally it is not necessary to keep a distance between mounted modules.
NOTE:
When disconnecting the high voltage (either phase or null) the light dimmer will disconnect the light source and the LED will make short flashes – long pauses. When connecting the high voltage again, the light dimmer will turn on with Softstart. The light dimmer is turned on at the same level as before. If the M1(toggle ON/OFF) button has not been activated in 20s, the next function is to adjust the light up (long push).
Adjusting max./min. levels on dimmer modules type CP31:
As standard, the field of variation is adjusted at the factory where min. = 5% and max. = 95%. This can be changed by a new adjustment. The adjustment of these levels is done as follows:
NOTE. By the dimmer module CP 31BC, mounting of a "short" between clamp two (NO) and clamp four (L) is necessary before making adjustments. After the adjustment, the "short" must be removed.
Activate the M1 button (connect clamp G) until the module's LED flashes (about 20s

after the dimming module reaches max./min. level).
Max. level: Adjust the light until it reaches the wanted max. level and turn off the light on the M1 button. - Turn on again.
Min. level: Adjust the light until it reaches the wanted min. level and turn off the light on the M1 button.
- Turn on again and wait about 20s without touching the M1 button. When the LED stopsflashing, the max./min. levels are saved in the memory – also by power has been disconnected. The two latest levels, where the dimmer module was turned off, are saved. The lowest level of the two is saved as the minimum. NOTE. A small adjustment area must always be present between the max. and min. levels. The max. and min. levels are annulled if the two levels are placed to close to each other and the programming must start over again.
Adjustment of the automatic level:
After having adjusted the min. and max. level, the light is adjusted with the M1 button until the wanted automatic light level is reached. Afterwards, the automatic light level button (placed parallel above the light meter) is operated. Wait about 20s without touching the buttons – when the light turns off, the max.-, min.- and automatic levels are saved in the memory.
The light dimmer is now ready for use.

As standard, the light dimmer CP31 is supplied so that it can replace all previous versions of Conson light dimmers for DIN bar mounting.

Light dimmer and
Ballast controller
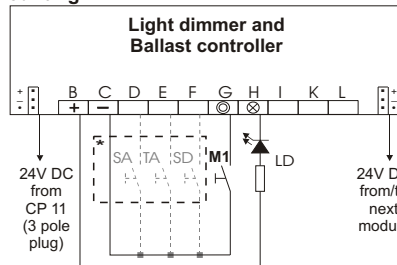
			Turn off all	- (* for centralcontrol use)
SA	D	Turn off all	- (* for centralcontrol use)
TA	E	Turn on all	- (* for centralcontrol use)
SD	F	Turn off partial	- (* for centralcontrol use)
M1	◎	Manual button "Touch"- operating ON/OFF and dimming together with min.-, Max.- And automatic light level.

LD ⊗ LED with resistor for indication
I I PIR/Potentiometer input
K K Daylight sensor input
L L Input/Output for master slave connection. All types and controlling version are Connectable

When the module is used in a Concept 2000 system and receives a databus- or Conkey signal, the module automatically changes to Concept 2000 functions. (Clamp "D" also functions as CP-databus communication).

Light dimmer and
ballast controller
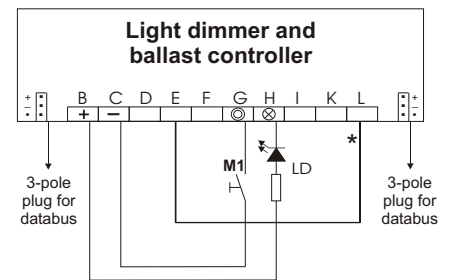
* To use the functions light up, light down, and toggle on/off via databus line from a link-module (CP20, CP70 A/B/C), it is necessary to mount a short between clamps "E" and "L" on the light dimmers. The light dimmers are supplied with this connection already mounted.
When this short is mounted, the "L" communication (parallel operation of more light dimmers) cannot be used.
NOTE:
If "L" communication is to be used, the short must be removed, the power must be shortly disconnected and the databus connection between the light dimmers must be disconnected.
When the connection between "E" and "L" is not mounted, the functions: change over, light up and light down via the databus will have the following functions:
Light up - The light dimmer is turned on at the latest level
Light down - The light dimmer is turned off
Toggle on/off - The light dimmer is turned off/on

All direct operations on the light dimmer's terminal block are independent of the above-mentioned functions.

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LightDimmer CP31

Automatic control
With help from a daylight sensor CP75H, the light dimmer or ballast controller will dim the artificial light in such a way that the light level in the room is the same regardless wether the sun is shining or the weather is cloudy. Reversed daylight controlling is also possible. I.e. when the artificial light is lowered concurrently with the reduction of the light incidence. It is suitable for goldsmiths and silversmiths. Activation occurs via CP20 (permanent short). (The daylight sensor should only be able to "see" daylight).

Furthermore, it is possible to connect the motion sensor CP73, to turn off the light after ten minutes when nobody is in the room. More motion sensors may be linked in series. Moreover, "Touch" operation is also possible. Low power push butt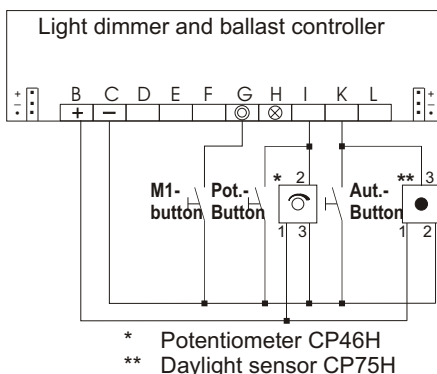on for the "Touch" operation is connected between clamps "G" and minus (clamp "C"). This button is called "the M1 button". "Touch" operation: Push this button (M1 button) shortly for turning the light dimmer on/off. When holding down the button, the light level is adjusted and the direction is changed when the button is unactivated shortly. The automatic button (toggle on/off) for activation of daylight controlling is connected between clamps "K" and minus (clamp "C"). Daylight sensor type CP75H is to be connected to plus, minus and clamp "K" (see connection). The light may be turned on/off on the automatic button. If the light has turned off automatically because there is no motion detected in the room, it will
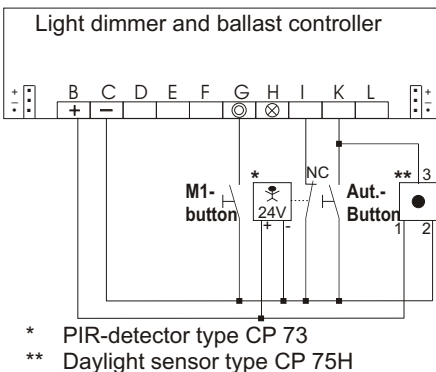
turn on immediately when motion is detected. If the light is turned off from a button (automatic button, M1 button or via CP 20) the motion sensor cannot turn the light back on. Here, activation of the automatic button, M1 button or a button via a link module, eg CP 20, is necessary.

Potentiometer controlling:
Apart from "Touch" operation, one might choose to operate the light dimmer or the ballast controller manual from a potentiometer CP46H (demands low power push button for on/off) or via an external control voltage 0.75-10 VDC. 0.75 VDC is the lowest light level and 10 volt is the highest light level. Less than 0.5 volt will turn the light dimmer or the ballast controller on/off alternately (ON/OFF) on the adjusted level. The control voltage and low power push button are connected to clamp "I". The module will always turn on/off when the control voltage is adjusted down under 0.5 volt (minimum). It is possible to connect light meter CP75H to clamps "K" and automatic button in the same way as to the automatic action controlling (this does not apply to Cp73).

Light dimmer and ballast controller

```
+        B  C  D  E  F  G  H  I  K  L        +
-        +  —           ◎  ⊗              -

     M1-    Pot.-    * 2        **  3
   button  Button   ┌───┐     ┌─────┐
                    │   │     │  ●  │
                    └───┘     └─────┘
                    1   3      Aut.-
                             1  Button 2
```

   *   Potentiometer CP46H
  **   Daylight sensor CP75H

VIA BUS:
You cannot use "fade time" + "turn on in ? time" or "turn off after ? time".
If you want to use "turn on", "turn off" or "light level" together with "fade time" you must program the modules as shown in the following examples:
F1 = "turn on"   F2 = "fade time"
F1 = "turn off"   F2 = "fade time"

F1 = "light level"   F2 = "fade time"
If they are changed and programmed:
F1 = "fade time"   F2 = "turn on",
the dimmer will turn on without "fade time".
Another example: if you want to use "light level" together with "turn on in ? time":
F1 = "light level"   F2 = "turn on in ? time".
If they are changed and programmed:
F1 = "turn on in ? time" F2 = "light level", the dimmer will turn on on "light level" and stay there.
SUMMARY:
If you use "light level" it must be programmed first.
If you use "fade over time" it must be programmed last.

"Fade over time": Can be used to make a long dimming time for eg cinemas or to make a "soft" change between light scenes. Fade 2 hours is especially suited for eg chicken farm.

Fade over time: the time is calculated from 0-100% light.
If the light dimmer has been turned off, it starts from 0%. If the light dimmer is turned on at eg 50% and you say 100% - fade 10s, the light dimmer adjusts from 50% to 100% (the time is then 5s).

Light level (%)

```
100% ·········································
                                      ╱
                                   ╱
 50% ················        ╱
                       ╱
                    ╱
                 ╱                    FADE over time (sec)
              5sec.      10sec.
```
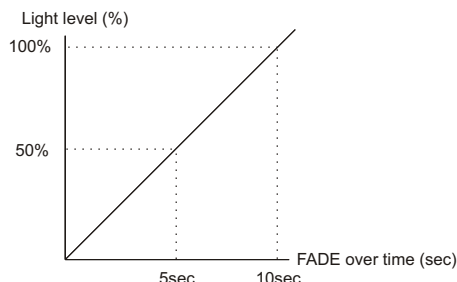
Technical data dimmer module CP31:

Temperature range	-5°…+35° Celsius
Mounting	DIN rail
Separation	4KV>8mm
Encapsulment	DIN 40050
DIN rail symmetrical	DIN 46277
Dimensions (h x w x d)	85x70x76mm.
Weight CP31LR	295g
Weight CP31CR	255g
Weight CP31BC	195g

Light dimmer and ballast controller

```
+        B  C  D  E  F  G  H  I  K  L        +
-        +  —           ◎  ⊗              -

                        NC
     M1-    *          *    **  3
   button  ┌────┐ Aut.- ┌─────┐
           │24V │ Button│  ●  │
           └────┘       └─────┘
           +  -        1       2
```

   *   PIR-detector type CP 73
  **   Daylight sensor type CP 75H

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CONCEPT 2000

LightDimmer CP31

Coupling of more dimmers or ballast controllers (a combination is possible)

Coupling of dimmers and ballast controllers Conson has developed dimmers and ballast controllers in such a way that up to ten dimmers/ballast controllers may be controlled together. Dimmers may also be connected with ballast controllers. This function may be used in various places with advantage. Some examples:
Large rooms, which may be divided up into smaller rooms by means of folding doors. In rooms or premises, where the load is too large for one dimmer/ballast controller, the load may be divided on more dimmers, thus

connecting these permanently by combining the clamps "L".
The coupling occurs when the clamp "L" on the dimmers/ballast controllers are connected. If the dimmers/ballast controllers are connected, the dimmer/ballast controller, which is operated, is the "Master" and decides the light level. Via clamp "L", the Master "communicates" which light level the other dimmers/ballast controllers ("Slaves") are to be adjusted to. This happens when a dimmer/ballast controller is operated via a button. The "Slave" dimmers may not be

programmed (standard setting is to be erased). Bus/data line is disconnected by connection of dimmers for more rooms.

NOTE: Coupling of dimmers/ballast controllers must only occur on the low voltage side. The adjusted stages or exits must NOT be connected.

Master/slave connection with constant coupling

Master/slave connection with connection switch (two rooms)
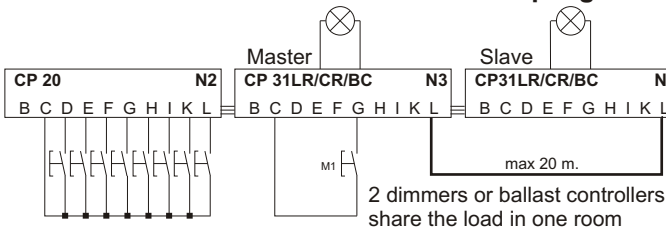
Program N3:

⫟ :CP31 N3 F1   L: SW -1
R- A:OFF   K:1- - - - - - -

⫟ :CP31 N3 F2   L: SW -1
R- A:ON   K:- 2- - - - - -

Program N4:
Program is erased
(No program)
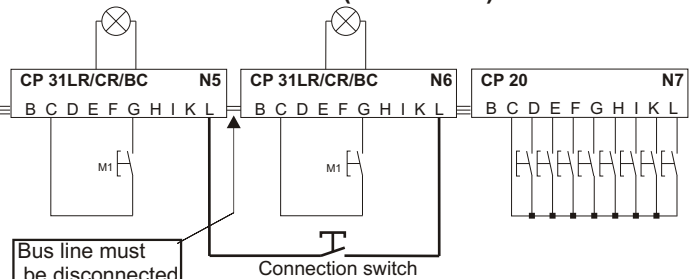
Program N5:

⫟ :CP31 N5 F1   L: SW -1
R- A:OFF   K:1- - - - - - -

⫟ :CP31 N5 F2   L: SW -1
R- A:L 30%   K:- 3- - - - -

⫟ :CP31 N5 F2   L: SW -1
R- A:Lys 70% K:- - - 4- - -

Program N6:

⫟ :CP31 N6 F1   L: SW -1
R- A:OFF   K:1- - - - - - -

⫟ :CP31 N6 F2   L: SW -1
R- A:L 30%   K:- 3- - - - -

⫟ :CP31 N6 F2   L: SW -1
R- A:Lys 70% K:- - - 4- - -

This coupling is a combination of the two connections above

Program N6:
Program is erased
(No program)
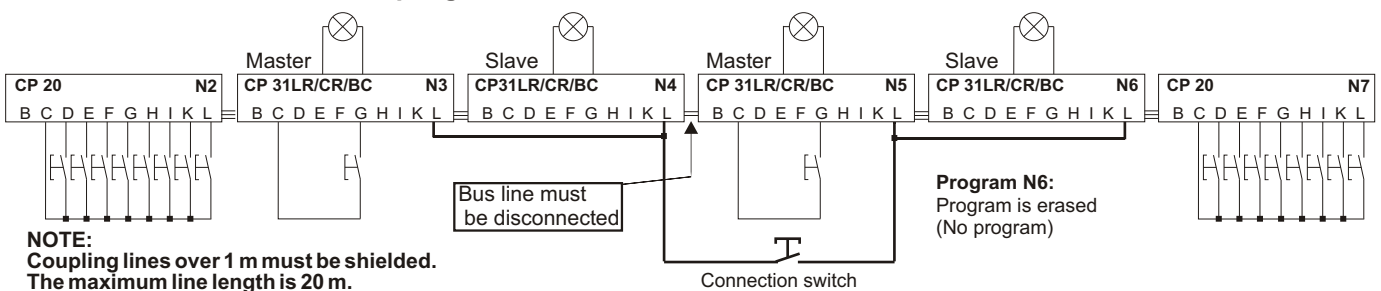
NOTE:
Coupling lines over 1 m must be shielded.
The maximum line length is 20 m.
By longer line lengths, an auxiliary relay is placed, with an RC-LED
or a blocking diode above the coil, in the electric switch board.

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CONCEPT 2000

LightDimmer CP31

Planning examples of coupling of dimmers or ballast controllers in a conference room which can be divided into several rooms.

Coupling of dimmers and the ballast controllers (or combined):
2 rooms: If folding door A is opened (the button is closed) the dimmers or the ballast controllers will be connected. If one of the buttons is operated, both dimmers or ballast controllers are adjusted to the same level irrespective of type.
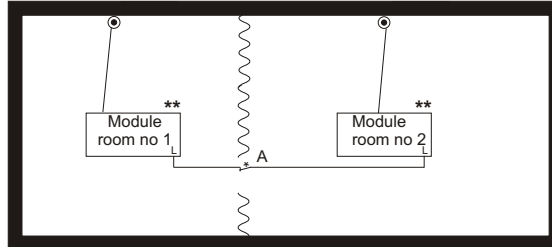
** Ballast controllers, types of dimmers and number depend on load and wishes regarding control.

3 rooms: If folding door A is opened (the button is closed) the dimmers/ballast controllers 1 and 2 will be connected and can be operated from the connected buttons. Dimmers/ballast controllers can be operated separately. If all doors are opened, all dimmers/ballast controllers will be connected and they could be operated from all buttons in the room, despite of type.
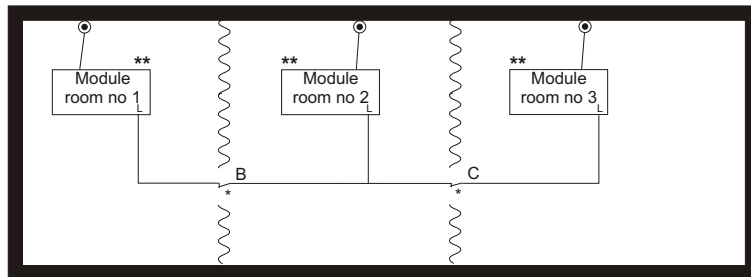
**Ballast controllers, types of dimmers and number depend on load.

4 rooms: if all folding doors are closed, all dimmers will function separately. However, if folding door D is opened, dimmers/ballast controllers 1 and 2 will be connected. If door F is opened, dimmers/ballast controllers 3 and 4 will be connected. As a result, the room is now divided into two separate rooms.

If only the doors D and G are open, the dimmers/ballast controllers 1, 2 and 3 will function analogous while dimmer/ballast controller 4 still can be operated separately.

The connection will first take place when the dimmers or the ballast controllers are operated, despite the types which are connected.

NB! The rooms can also be fitted with CP20, CP70 etc.
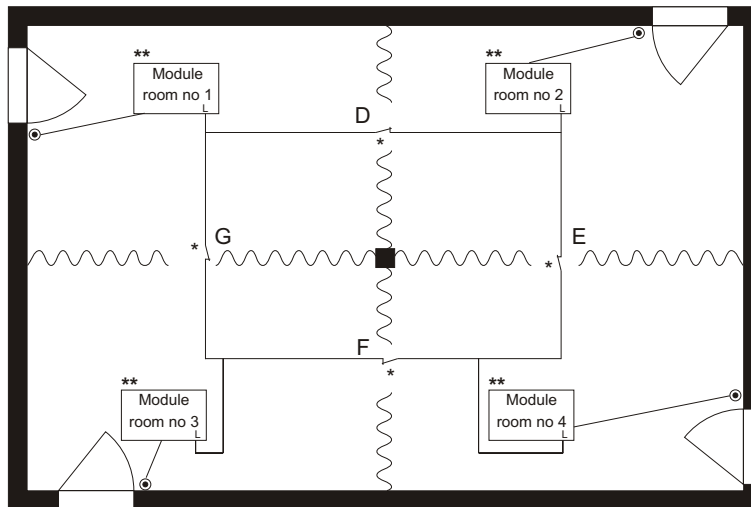
**Ballast controllers, types of dimmers and number depend on load.

*Note that all connection buttons are switched off when the doors are closed.

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CONCEPT
2000®

LightDimmer CP31

Power supply type CP 11
24V DC - 17VA
L   N   PE
10A
CP 11 | 4 | | 8 | 10 | Modul-Nr. **1**
230V
24VOLT
+ + +   _ _
C D E   H I K

Switch-Link type CP 20
Programable Commander,
transmit 8 input/channel
on the databus, max. 4 pcs. CP 20
each datastring (32 channel)

CP 20 | Modul-Nr. **2**
24V   Input
+ _ 1 2 3 4 5 6 7 8
B C D E F G H I K L

Input 1=Turn all OFF
Input 2=Turn All ON

SA TA

L   N   PE
10A
Type B
CP 31 | L | N | ⊕ | Modul-Nr. **3**
4 6 8 10
24V
+ _
B C D E F G H I K L

Push button
for toggle ON/OFF

:CP11   N1
Not programable

:CP20   N2   Link nr.: 1
AND 1:- - - - - - - -

:CP31 N3 F1   L: SW -1
R- A:OFF   K:1- - - - - -

:CP31 N3 F2   L: SW -1
R- A:ON   K:- 2- - - - - -

Factory setting

Power supply type CP 11
24V DC - 17VA
L   N   PE
10A
CP 11 | 4 | | 8 | 10 | Modul-Nr. **1**
230V
24VOLT
+ + +   _ _
C D E   H I K

Switch-Link type CP 20
Programable Commander,
transmit 8 input/channel
on the databus, max. 4 pcs. CP 20
each datastring (32 channel)

CP 20 | Modul-Nr. **2**
24V   Input
+ _ 1 2 3 4 5 6 7 8
B C D E F G H I K L

Input 1=Turn all OFF
Input 2=Turn All ON
Input 3=Light 30%

SA TA

L   N   PE
10A
Type B
CP 31 | L | N | ⊕ | Modul-Nr. **3**
4 6 8 10
24V
+ _
B C D E F G H I K L

Push button
for toggle ON/OFF

:CP11   N1
Not programable

:CP20   N2   Link nr.: 1
AND 1:- - - - - - - -

:CP31 N3 F1   L: SW -1
R- A:OFF   K:1- - - - - -

:CP31 N3 F3   L: SW -1
R- A:L 30%   K:- -3 - - - - -

:CP31 N3 F2   L: SW -1
R- A:ON   K:- 2- - - - - -

Power supply type CP 11
24V DC - 17VA
L   N   PE
10A
CP 11 | 4 | | 8 | 10 | Modul-Nr. **1**
230V
24VOLT
+ + +   _ _
C D E   H I K

Switch-Link type CP 20
Programable Commander,
transmit 8 input/channel
on the databus, max. 4 Pcs. CP 20
each datastring (32 channel)

CP 20 | Modul-Nr. **2**
24V   Input
+ _ 1 2 3 4 5 6 7 8
B C D E F G H I K L

Input 1=Turn all OFF
Input 2=Turn All ON
Input 3=Light 30%
Input 3=fade over time 10 sec.

SA TA

L   N   PE
10A
Type B
CP 31 | L | N | ⊕ | Modul-Nr. **3**
4 6 8 10
24V
+ _
B C D E F G H I K L

Push button
for toggle ON/OFF

:CP11   N1
Not programable

:CP20   N2   Link nr.: 1
AND 1:- - - - - - - -

:CP31 N3 F1   L: SW -1
R- A:OFF   K:1- - - - - -

:CP31 N3 F3   L: SW -1
R- A:L 30%   K:- -3 - - - - -

:CP31 N3 F2   L: SW -1
R- A:ON   K:- 2- - - - - -

:CP31 N3 F4   L: SW -1
R- A:Fade10s K:- -3 - - - - -

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CONCEPT
2000®

LightDimmer CP31

Dayli=Input 1
Relax=Input 2
Clean=Input 3
TV=Input 4
Guests=Input 5

Dinner table   **Wall**   **Celling**   **Dinner table**

L N PE   L N PE   L N PE   L N PE

10A Type B   10A Type B   10A Type B   10A Type B

CP 20   Modul-Nr. **2**
CP 31   Modul-Nr. **3**
CP 31   Modul-Nr. **4**
CP 31   Modul-Nr. **5**
CP 31   Modul-Nr. **6**

L N 4 6 8 10   L N 4 6 8 10   L N 4 6 8 10   L N 4 6 8 10

24V +− Input 1 2 3 4 5 6 7 8   24V +−   24V +−   24V +−   24V +−

B C D E F G H I K L

3 pole plug from CP 11

7

Push button for toggle ON/OFF   Push button for toggle ON/OFF   Push button for toggle ON/OFF   Push button for toggle ON/OFF

| :CP31 N3 F1 L: SW -1
R- A:AUX K:1- - - - - - - |
| :CP31 N4 F1 L: SW -1
R- A:AUX K:1- - - - - - - |
| :CP31 N5 F1 L: SW -1
R- A:AUX K:1- - - - - - |
| :CP31 N6 F1 L: SW -1
R- A:AUX K:1- - - - - - - |

| :CP31 N3 F2 L: SW -1
R- A:L 70% K:1- - - - - - - |
| :CP31 N4 F2 L: SW -1
R- A:L 50% K:1- - - - - - - |
| :CP31 N5 F2 L: SW -1
R- A:L 50% K:1- - - - - - - |
| :CP31 N6 F2 L: SW -1
R- A:L 10% K:1- - - - - - - |

| :CP31 N3 F3 L: SW -1
R- A:L 40% K:- 2- - - - - - |
| :CP31 N4 F3 L: SW -1
R- A:L 20% K:- 2- - - - - - |
| :CP31 N5 F3 L: SW -1
R- A:L 40% K:- 2- - - - - - |
| :CP31 N6 F3 L: SW -1
R- A:L 20% K:- 2- - - - - |

| :CP31 N3 F4 L: SW -1
R- A:L 100% K:- - 3- - - - - |
| :CP31 N4 F4 L: SW -1
R- A:L 100% K:- - 3- - - - - |
| :CP31 N5 F4 L: SW -1
R- A:L 100% K:- - 3- - - - - |
| :CP31 N6 F4 L: SW -1
R- A:L 100% K:- - 3- - - - - |

| :CP31 N3 F5 L: SW -1
R- A:L 10% K:- - - 4- - - - |
| :CP31 N4 F5 L: SW -1
R- A:L 40% K:- - - 4- - - - |
| :CP31 N5 F5 L: SW -1
R- A:L 30% K:- - - 4- - - - |
| :CP31 N6 F5 L: SW -1
R- A:L 40% K:- - - 4- - - - |

| :CP31 N3 F6 L: SW -1
R- A:L 50% K:- - - - 5- - - |
| :CP31 N4 F6 L: SW -1
R- A:L 80% K:- - - - 5- - - |
| :CP31 N5 F6 L: SW -1
R- A:L 60% K:- - - - 5- - - |
| :CP31 N6 F6 L: SW -1
R- A:L 40% K:- - - - 5- - - |

| :CP20 N2 Link nr.: 1
Grp ON/OFF :1- - - - - - - |

Switch-Link type CP 20
Programable Commander,
transmit 8 input/channel
on the databus, max. 4 pcs. CP 20
each datastring (32 channel)

L N PE   L N PE   L N PE

10A Type B   10A Type B   10A Type B

CP 20   Modul-Nr. **2**
CP 20   Modul-Nr. **3**
CP 31   Modul-Nr. **4**
CP 31   Modul-Nr. **5**
CP 31   Modul-Nr. **6**

L N 4 6 8 10   L N 4 6 8 10   L N 4 6 8 10

24V +− Input 1 2 3 4 5 6 7 8   24V +− Input 1 2 3 4 5 6 7 8   24V +−   24V +−   24V +−

B C D E F G H I K L

3 polet stik fra CP 11

7   7

Push button for toggle ON/OFF   Push button for toggle ON/OFF   Push button for toggle ON/OFF

| :CP31 N4 F1 L: SW -1
R- A:OFF K:1- - - - - - |
| :CP31 N5 F1 L: SW -2
R- A:OFF K:1- - - - - - - |

| :CP31 N4 F2 L: SW -1
R- A:ON K:- 2- - - - - |
| :CP31 N5 F2 L: SW -1
R- A:ON K:- 2- - - - - |

| :CP31 N4 F3 L: SW -1
R- A:L 30% K:- - 3- - - - |
| :CP31 N5 F3 L: SW -2
R- A:L 30% K:- - 3- - - - |

| :CP31 N4 F2 L: SW -1
R- A:L 50% K:- - - 4- - - - |
| :CP31 N5 F2 L: SW -2
R- A:L 50% K:- - - 4- - - - |

| :CP31 N4 F2 L: SW -1
R- A:L 80% K:- - - - 5- - - |
| :CP31 N5 F2 L: SW -2
R- A:L 80% K:- - - - 5- - - |

| :CP20 N2 Link nr.: 1
AND 1:- - - - - - - - |
| :CP20 N3 Link nr.: 2
AND 1:- - - - - - - - |

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CONCEPT 2000

LightDimmer CP31

Employment examples:

The diagram employment examples for light control of a livingroom in a house with 3 lights with dimmer-module type CP 31 (LR/CR or BC) witch can be controlled separate by a Touch function (on, off + dim) as ("stand alone") and overall controlled by signal from Switch-Link type CP 20 (central controled, light scenes ect.) And by BO-Link type CP 70B (wireless remote control with a B&O´s remote control).

Power supply type CP 11
24V DC - 17VA

Switch-Link type CP 20
Programable Commander,
transmit 8 input/channel
on the databus, max. 4 pcs. CP 20
each datastring (32 channel)

BO-Link type CP 70B
for wireless remote control with B&O´s
remote control, transmit 8 channel
on the databus, max. 4 Pcs. CP 70B
pr. datastring (32 channel)

CP 11 | 4 | ⊠ | 8 | 10 | Module-No. **1**
230V | 24VOLT
+ + + | C | D | E | H | I | K

CP 20 | Module-No. **2**
24V + − | 1 2 3 4 5 6 7 8 Input
B | C | D | E | F | G | H | I | K | L

CP 70B | L 1 2 3 4 L | Module-No. **3**
24V + − | ≩ | +5V | OUTPUT
B | C | D | E | F | G | H | I | K | L

Plus (+) 24V DC
Minus (−)
Data

Type CP 2509 connected for mode 1 - symbol mode

SA1: Turn all OFF at the main door
SD1: Turn off partial in bedroom
(SD1 Turn all OFF but not the light in the bedroom)

SA1   SD1

Push panel in Livingroom:
Push panel type CP 2506 with 5 button+Sesamfunction
1 button for dayli on/off (center button) and
4 button for activating of light scenes

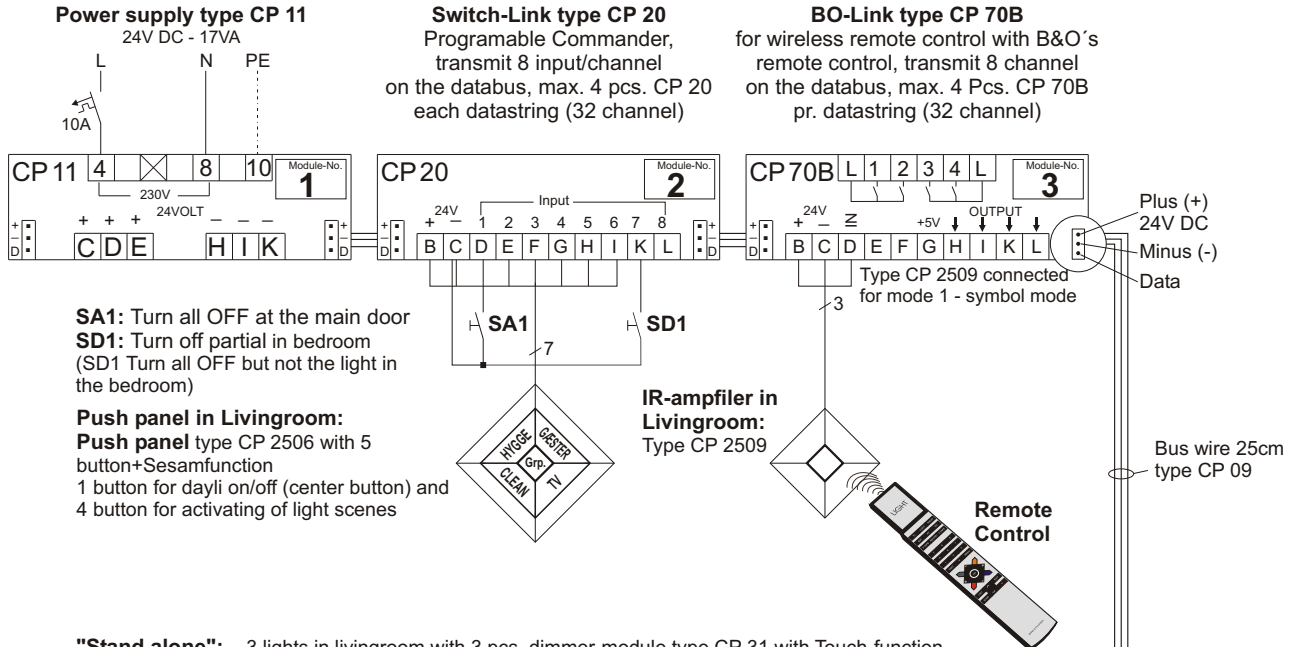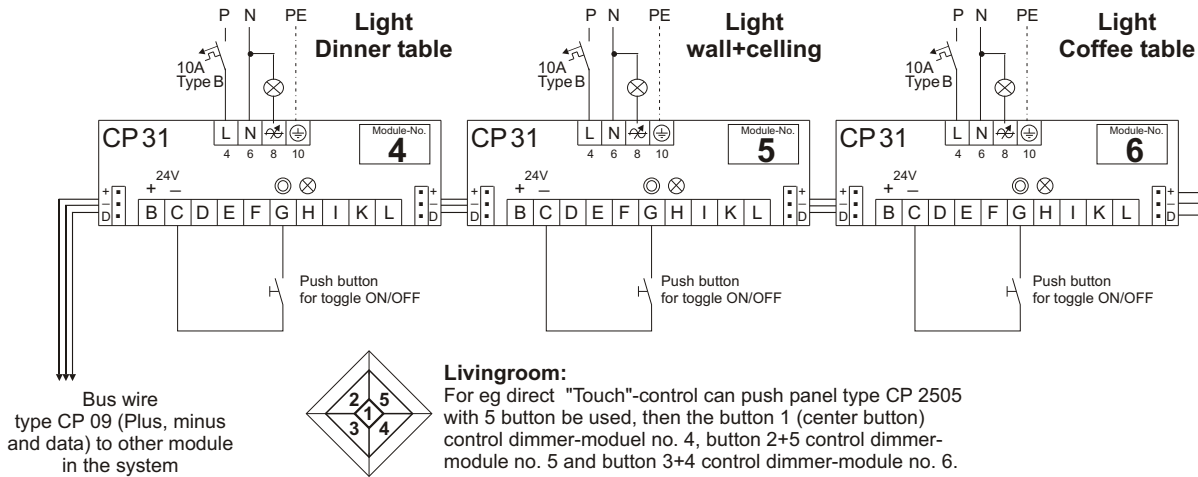HYGGE / GÆSTER / Grp. / CLEAN / TV

IR-ampfiler in Livingroom:
Type CP 2509

Remote Control

Bus wire 25cm type CP 09

"Stand alone": 3 lights in livingroom with 3 pcs. dimmer-module type CP 31 with Touch-function (on/off+dim) via direct toggle input. Overall control by Link-module.

P N PE
Light Dinner table
10A Type B

P N PE
Light wall+celling
10A Type B

P N PE
Light Coffee table
10A Type B

CP 31 | L N ⏚ ⏚ | Module-No. **4**
4 6 8 10
24V + − | B | C | D | E | F | G | H | I | K | L

CP 31 | L N ⏚ ⏚ | Module-No. **5**
4 6 8 10
24V + − | B | C | D | E | F | G | H | I | K | L

CP 31 | L N ⏚ ⏚ | Module-No. **6**
4 6 8 10
24V + − | B | C | D | E | F | G | H | I | K | L

Push button for toggle ON/OFF

Push button for toggle ON/OFF

Push button for toggle ON/OFF

Bus wire type CP 09 (Plus, minus and data) to other module in the system

2 5 / 1 / 3 4

Livingroom:
For eg direct "Touch"-control can push panel type CP 2505 with 5 button be used, then the button 1 (center button) control dimmer-moduel no. 4, button 2+5 control dimmer-module no. 5 and button 3+4 control dimmer-module no. 6.

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CONCEPT
2000

LightDimmer CP31

Employment examples: Function (continued from previous page)

The examples displays bus-signal from Switch-Link CP20 and B&O-Link type CP70B there transmits on the databus to actors-module (dimmer module-no. 4, 5 and 6). In the examples shows push button on panel and button on Beo4 Remote control (via CP70B) with activate the programmed function in the dimmer-module.

Overall push button control			Wireless remote control		"CP-BUS"-function dimmer-module CP 31 module-no. 4, 5 og 6					
Push button	Place	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
Turn all OFF	Maindoor	1	-	-	🔦	⨆	🔦	⨆	🔦	⨆
ON/OFF **Dayli**	Livingroom - button 1	2	GO	2	🔦	⊓	🔦	⊓	🔦	⊓
Light scene 1 **Relax**	Livingroom - button 2	3	◇	3	🔦	⌐	🔦	⌐	🔦	⌐
Light scene 2 **Guests**	Livingroom - button 5	4	◇	4	🔦	⌐	🔦	⌐	🔦	⌐
Light scene 3 **TV**	Livingroom - button 4	5	◇	5	🔦	⌐	🔦	⌐	🔦	⌐
Light scene 4 **Cleaning**	Livingroom - button 3	6	◇	6	🔦	⌐	🔦	⌐	🔦	⌐
-	-	-	STOP	1	🔦	⨆	🔦	⨆	🔦	⨆
OFF partial	Bedroom	7	-	-	🔦	⨆	🔦	⨆	🔦	⨆

Symbol explanations: 🔦 Lamp/light level   🔦 Lamp switch OFF   ⌐ON   ⌐OFF   ⊓ON/OFF-toggle

Employment examples: Programming

Examples displays configuration/programming of the module in menu windows of the display in the programming Key CONKEY CP79.

Power supply CP11 module-no. 1
CP 11 not grammable!

```
📞:CP11  N1
Not programmable
```

Switch-Link CP20 module-no. 2
8-input/channel - programmerbar

```
📞:CP20  N2     Link nr.: 1
Grp ON/OFF : 2
```

B&O-Link CP70B module-no. 3
Remote control with B&O- 8 channel

```
📞:CP70B  N3     Link nr.: 1
```

Dimmer-module CP31 module-no. 4
Programmable with 40 busfunctions

```
📞:CP31  N4  F1   L: SW -1
R- A:OFF        K:1- - - - -7-
```
```
📞:CP31  N4  F8   L: B&O-1
R- A:Off         K:1- - - - - - -
```
```
📞:CP31  N4  F2   L: SW -1
R- A:AUX        K:-2- - - - -
```
```
📞:CP31  N4  F9   L: B&O-1
R- A:Aux         K:-2 - - - - -
```
```
📞:CP31  N4  F3   L: SW -1
R- A:L 90%       K:-2- - - - -
```
```
📞:CP31  N4  F10  L: B&O-1
R- A:L  90%  K:-2 - - - - -
```
```
📞:CP31  N4  F4   L: SW -1
R- A:L 40%       K:- -3 - - - -
```
```
📞:CP31  N4  F11  L: B&O-1
R- A:L  40%  K:- -3 - - - -
```
```
📞:CP31  N4  F5   L: SW -1
R- A:L 80%       K:- - -4 - - -
```
```
📞:CP31  N4  F12  L: B&O-1
R- A:L  80%  K:- - -4 - - -
```
```
📞:CP31  N4  F6   L: SW -1
R- A:L 20%       K:- - - -5 - -
```
```
📞:CP31  N4  F13  L: B&O-1
R- A:L  20%  K:- - - -5 - -
```
```
📞:CP31  N4  F7   L: SW -1
R- A:L 100%      K:- - - - -6 -
```
```
📞:CP31  N4  F14  L: B&O-1
R- A:L  100% K:- - - - -6 - -
```

Dimmer-module CP31 module-no. 5
Programmable with 40 busfunctions

```
📞:CP31  N5  F1   L: SW -1
R- A:OFF        K:1- - - - -7-
```
```
📞:CP31  N4  F8   L: B&O-1
R- A:OFF         K:1- - - - - -
```
```
📞:CP31  N5  F2   L: SW -1
R- A:Aux        K:-2- - - - -
```
```
📞:CP31  N4  F9   L: B&O-1
R- A:Aux         K:-2 - - - - -
```
```
📞:CP31  N5  F3   L: SW -1
R- A:L 40%       K:-2- - - - -
```
```
📞:CP31  N4  F10  L: B&O-1
R- A:L  40%  K:-2 - - - - -
```
```
📞:CP31  N5  F4   L: SW -1
R- A:L 20%       K:- -3 - - - -
```
```
📞:CP31  N4  F11  L: B&O-1
R- A:L  20%  K:- -3 - - - -
```
```
📞:CP31  N5  F5   L: SW -1
R- A:L 70%       K:- - -4 - - -
```
```
📞:CP31  N4  F12  L: B&O-1
R- A:L  70%  K:- - -4 - - -
```
```
📞:CP31  N5  F6   L: SW -1
R- A:L 40%       K:- - - -5 - -
```
```
📞:CP31  N4  F13  L: B&O-1
R- A:L  40%  K:- - - -5 - -
```
```
📞:CP31  N5  F7   L: SW -1
R- A:L 100%      K:- - - - -6 -
```
```
📞:CP31  N4  F14  L: B&O-1
R- A:L  100% K:- - - - -6 - -
```

Dimmer-module CP31 module-no. 6
Programmable with 40 busfunctions

```
📞:CP31  N6  F1   L: SW -1
R- A:OFF        K:1- - - - -7-
```
```
📞:CP31  N6  F8   L: B&O-1
R- A:OFF         K:1- - - - - -
```
```
📞:CP31  N6  F2   L: SW -1
R- A:Aux        K:-2- - - - -
```
```
📞:CP31  N6  F9   L: B&O-1
R- A:Aux         K:-2 - - - - -
```
```
📞:CP31  N6  F3   L: SW -1
R- A:L 60%       K:-2- - - - -
```
```
📞:CP31  N6  F10  L: B&O-1
R- A:L  60%  K:-2 - - - - -
```
```
📞:CP31  N6  F4   L: SW -1
R- A:L 30%       K:- -3 - - - -
```
```
📞:CP31  N6  F11  L: B&O-1
R- A:L  30%  K:- -3 - - - -
```
```
📞:CP31  N6  F5   L: SW -1
R- A:L 50%       K:- - -4 - - -
```
```
📞:CP31  N6  F12  L: B&O-1
R- A:L  50%  K:- - -4 - - -
```
```
📞:CP31  N6  F6   L: SW -1
R- A:L 10%       K:- - - -5 - -
```
```
📞:CP31  N6  F13  L: B&O-1
R- A:L  10%  K:- - - -5 - -
```
```
📞:CP31  N6  F7   L: SW -1
R- A:L 100%      K:- - - - -6 -
```
```
📞:CP31  N6  F14  L: B&O-1
R- A:L  100% K:- - - - -6 - -
```

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