

Dimmax 420SL – Instructions

Dimmax 420SL is a 420W static & silent electronic light dimmer for resistive, capacitive and inductive lighting systems. It has an optimized mode to handle Leds (up to 200W)

It is operated with :

- 1 red indicator to report status or errors
- 1 operation mode manual selector
- 1 minimum start level manual selector
- 1 (or more) external pushbuttons to start, stop and adjust dimming effect

Nominal conditions : 230V AC +/- 15%, 50 Hz, T ambient : -10°C to 40°C

Foreword :

Classical 230V bulb lamps & halogens or 12V halogens on ferromagnetic transformers are slowly disappearing from the market. Today's new lighting systems include a lot of embedded electronics in Led lamps, e-transformers for 12V halogens or e-converters for Leds. Dimmax 420SL is designed to offer maximum flexibility for all, and can therefore NOT operate in fully automatic mode. If the load is customer's choice and depends on undescribed and unpredictable technological evolution of lighting systems, automatic choice of optimum parameters would require a dimmer to be software updated almost every month.

Dimmax 420SL has 3 manually selectable "best choice" modes corresponding to the majority of uses. NEVER MIX different lighting systems on the same dimmer. We have recommended modes, BUT user can try at NO RISK all of them, unit will always stay protected :

- if load is truly inductive, unit overrides user's mode choice and forces the use of mode 2 (leading)
- if selected mode generates too much losses, unit enters auto-resettable overtemperature protection
- if selected mode generates too high current pulses, unit enters auto-resettable overcurrent protection
- final best choice is the one without protection's stops (user will in most cases be fixed after 10 minutes test at 70% dimming rate) and giving the smoother and broader dimming effect.

Dimmax 420SL is designed for lighting systems. Other loads (like motors) are not recommended. Consult us BEFORE such use.

Among lighting systems you may have :

- 230V classical bulbs or halogens. These are ALWAYS DIMMABLE
 - 230V ferromagnetic transformers for 12V halogens. These are ALWAYS DIMMABLE. Always select a good quality transformer with safety fuses on BOTH primary and secondary sides.
 - 230V electronic modules (like e-transformers for 12V halogens, or e-converters included in a Led lighting system). These are not always dimmable, CHECK FIRST, ONLY DIMMABLE ones are ALLOWED
 - 230V Leds. These are not always dimmable, CHECK FIRST, ONLY DIMMABLE ones are ALLOWED
- We strongly recommend to read the "Important note about maximum Led power" on next page

Also, some lighting systems will only start at dim levels much higher than 0%. Therefore, after best operation mode selection, user can adapt minimum start level by rotating the minimum start level control.

Default ex-factory settings : mode = 1 (trailing) and minimum start level = 3% (both controls fully counterclockwise as on the photo).

Wiring :

Proceed to wiring according to diagram (230V main's fuses removed).

Note following :

- the 2 "L" Line contacts are internally paralleled
- connection of "N" contact to Neutral is mandatory
- several pushbuttons can be paralleled
- NEVER share one pushbutton with several dimmers
- NEVER use pushbuttons with light indicators
- max pushbutton distance 25 m
- max wire size per contact 2,5 mm²

Mode selector and red indicator display :

At reconnection of main's 230V fuses, Dimmax 420SL will wake up and show it by lighting its red indicator for 0.5 second.



From start position (fully counterclockwise) of mode selector, turn it smoothly clockwise. The first 1/3 of its span will select mode 1, from 1/3 to 2/3 is mode 2, after is mode 3.

Selected mode is shown by a visual code on the red indicator :

1 short red flash for mode 1, permanently repeated

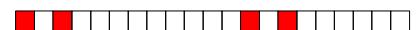
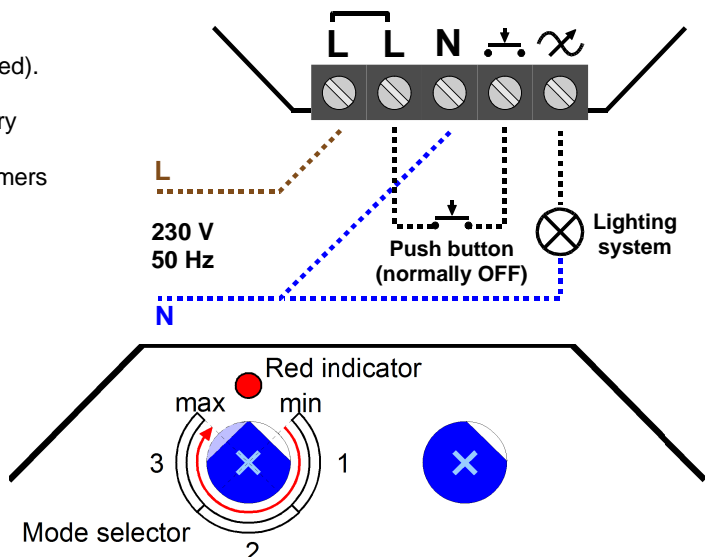
Mode 1 = trailing edge dimming, output power 0 - 420W, to be used with :

- 230V classical bulb lamps and halogens (BEST mode to avoid overcurrent error at cold startup)
- 230V dimmable electronic converters designed for trailing edge

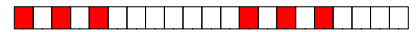
2 short red flashes for mode 2, permanently repeated

Mode 2 = leading edge dimming (also called "triac mode"), output power 0 - 420W, to be used with :

- ferromagnetic transformers for 12V halogen lamps (Dimmax will detect them and override any other mode choice)
- 230V dimmable electronic converters designed for leading edge



3 short red flashes for mode 3, permanently repeated



Mode 3 = special dimming mode for Leds, output power 0 - 200W or less (see below), to be used with :

- 230V Leds, with following conditions :
 - ALL Leds exactly of same type, model and power
 - maximum total Led electrical power = 200W
 - maximum total number of Leds = 30

Mode 3 is designed for a best compromise on most Leds, meaning : wide dimming range, capability to dim down to low levels, low dimmer's heat and reduced surge currents. But some Leds may react better in other modes. It is always worth a try. Generally :
- mode 1 is very gentle with Leds, gives low dimmer's heat BUT dimming level can hardly be reduced to low.
- mode 2 ("triac mode") has nice dimming range, including low levels, but generates huge current peaks and can dramatically heat up the dimmer. Acceptable use of mode 2 with Leds will probably require to stay far below 200W

When a mode border is crossed by rotating the selector (clockwise or counterclockwise), Dimmax 420SL will fully reset. It means :

- that the dimmer output goes smoothly OFF, load is cut
- that the red indicator goes ON for 0.5 s to confirm a change
- and after, that the new mode code will be displayed



Hint : Crossing a mode border is an easy way to fully reset (including error conditions) a unit without disconnecting it from the 230V.

As soon as the mode code is displayed , Dimmax 420SL is ready to be operated from the pushbutton.

Important note about maximum Led power on Dimmax 420SL (at the date of August 2014)

Market offers high quality ... and also poor quality dimmable Leds. Design is fast changing, even for similar models from same manufacturer. Some, although declared dimmable, show a limited dimming range, and/or can cause huge current transients.

Considering the current lack of international quality standards, it is impossible to guarantee that any market model will behave correctly and up to a maximum of 200W. Here is our manufacturer's current statement about it :

- we definitively found Leds working nicely up to 200W with our Dimmax 420SL in mode 3
- publishing a list of compatible models is not practical, as the situation is fast changing
- contact your local distributor BEFORE buying the Leds. He can advise or set up a test (we may help for)
- poor quality Leds can be tried anyway on Dimmax 420SL, the device is protected against over current and over temperature. Should a protection occur, reduce progressively the installed power (number of Leds)

Error conditions and red indicator display :

If an error condition occurs, mode code is replaced by error condition code on the red indicator.

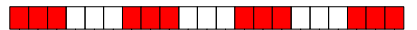
ON/OFF short flashes, permanently repeated, for overcurrent



Meaning : a transient current higher than the allowed limit has occurred.

Dimmer goes OFF immediately and pushbutton is disabled for 1 minute ;
when red indicator shows mode code again, unit can be reactivated by pushbutton.

ON/OFF long flashes, permanently repeated, for overtemperature



Meaning : internal temperature has exceeded allowed limit ;

Dimmer goes OFF smoothly and pushbutton is disabled until internal temperature drops below the half ;
when red indicator shows mode code again, unit will automatically smoothly recover last dim level.

Additional hardware protections :

For safety, Dimmax 420SL is provided with 2 additional fully hardware protections :

- an auto-resettable mechanical temperature switch, cutting the power when needed
 - a wired fuse in case of exceptional failures (broken processor, lightning, water ...)
- This fuse is serviceable, but only at factory. If broken, red indicator will stay permanently OFF.

Pushbutton operation :

LONG PUSH (> 0.4s) on button : unit starts dimming (if not already) and slowly dims up / down between Min (adjustable) and Max level (100% = full conduction); last level is kept when the button is released.

SHORT PUSH (<0.4s) on button : unit starts or stops dimming with soft transition.

When stopping, unit will remember the last dim level (Memo level), and recover it at the next start (ex-factory default setting).

User may decide NOT to use Memo level, and replace it by Max level. To set this feature OFF or ON, do a LONG PUSH immediately followed by 4 SHORT PUSHES. Dimmer will softly stop to confirm the change.

Memo levels and Memo ON/OFF status are permanently remembered EVEN if the Dimmax 420SL is disconnected from 230V

Minimum start level selector :

Figure on the right shows minimum start level selector in its start position (factory default) = fully counterclockwise = 3%

Dimmax 420SL will read and apply minimum start level selector at wake up.

To redefine it, unit must be started. When the selector is moved, unit will forget its current dim level and go to minimum level according to selector's position. This helps an easy setting by watching the corresponding light level.
Minimum start level can be adjusted between 3% and 30%

