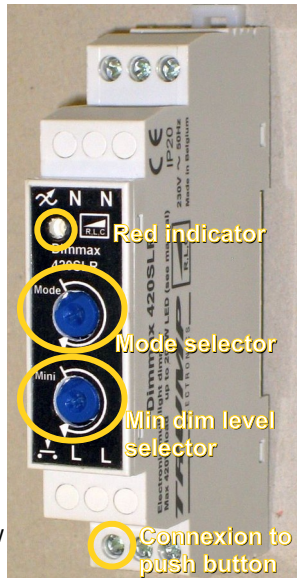
Dimmax 420SLR – Instructions



Prerequisites : Please read completely this manual before installation and start-up. This manual has to been given to the user .

The installation of this item must be done by a competent person following the rules of art and in respect of all existing norms.

Description: Dimmax 420SLR is a 420W static & silent electronic light dimmer for resistive (0 to 420W), capacitive (0 to 200VA) and inductive (0 to 380VA) lighting systems. It has an optimized mode to handle Leds (up to 200W). It has been designed to be installed on DIN rails, inside an electrical cabinet.
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 ambiant : -10°C to 40°C

Foreword : 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 420SLR is designed to offer maximum flexibility for all. Inductive loads are automatically recognized and in "leading edge" (mode 2) operated. For the others, the user can select between 4 classical or proprietary optimized dimming modes, to allow permanent compatibility with the constantly improved lighting systems. For resistive and capacitive loads, the user can try at NO RISK all of them, the unit will always stay protected :
- 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 420SLR is designed for lighting systems. Other loads (like motors) are forbiten.

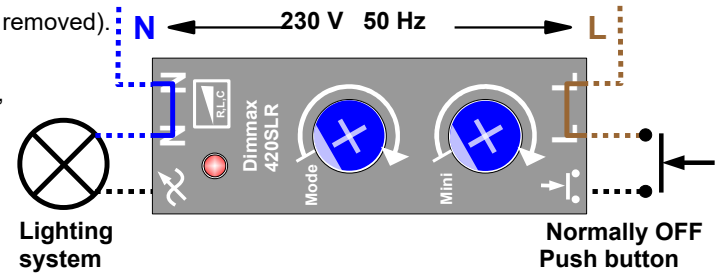
Among lighting systems you may have :

- **Resistive (R)**: 230V classical bulbs or halogens. These are ALWAYS DIMMABLE
- **Inductive (L)**: 230V ferromagnetic transformers for 12V halogens. These are ALWAYS DIMMABLE. Always select a good quality transformer with safety fuses on BOTH primary and secundary sides.Halogen load must be at least 80% of the nominal power of the transformer. NEVER let the secundary winding without a connected load.
- **Capacitive(C)**: 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
- **Capacitive(C)**: 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
ALL Leds or electronic modules connected to the same DimMax MUST be exactly of same type, model and power. It is advisable not to exceed a total power of 200VA, and a total number of devices of 30.
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).

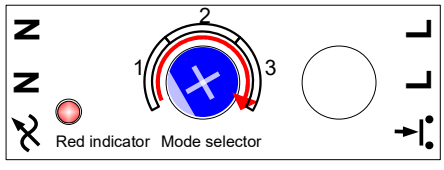
Note following :
- the 2 "L" Line contacts are internally paralleled
- the 2 "N" Neutral contacts are internally paralleled, connection to Neutral is MANDATORY
- several pushbuttons can be paralleled
- NEVER share a pushbutton with several dimmers
- NEVER use pushbuttons with light indicators
- max pushbutton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



Mode selector and red indicator display :

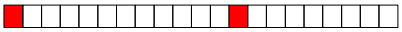
At reconnection of main's 230V fuses, Dimmax 420SLR will wake up and show it by lighting its *red indicator* for 0.5 second.

From start position (fully counterclockwise) of *mode selector*, turn it smoothly clockwise. The first 1/4 of its span will select mode 1, second selects mode 2, and so on uo to mode 4.



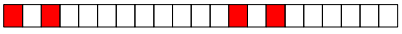
Selected mode is shown by a visual code on the r*ed indicator* :

1 short red flash for mode 1, permanently repeated

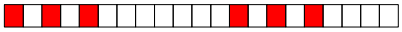


Mode 1 = trailing edge dimming, output power 0 - 420W, to be used with :
- 230V classical bulb lamps and halogens (BEST mode to avoid overcurrent error at cold startup)
- 230V dimmable electronic converters designed for trailing edge

2 short red flashes for mode 2, permanently repeated

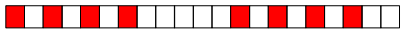


Mode 2 = leading edge dimming (also called "triac mode"), output power 0 - 420W, to be used with :
- ferromagnetic transformers for 12V halogen lamps (Dimmax will detect them and override any other mode choice)
- 230V dimmable electronic converters designed for leading edge

3 short red flashes for mode 3, permanently repeated 

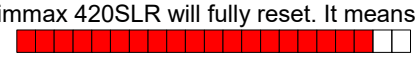
Mode 3 = power optimized mode for Leds, output power 0 – up to 200W, to be used with :

– 230V Leds, with following conditions : - ALL Leds exactly of same type, model and power
Mode 3 is designed to drive more Leds with less losses ans smaller peak currents in a majority of cases. But some Leds may react better in other modes. It is always worth a try.

4 short red flashes for mode 4, permanently repeated 

Mode 4 = antifliker optimized mode for Leds, output power 0 – up to 200W, to be used with :

– 230V dimmables "Filaments"-type Leds
Mode 4 may also be tried in case of flicker with other types of Leds.

When a mode border is crossed by rotating the selector (clockwise or counterclockwise), Dimmax 420SLR 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 420SLR is ready to be operated from the pushbutton.

Important note about maximum Led power on Dimmax 420SLR

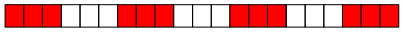
Market offers high quality ... and also poor quality dimmable Leds. Design is fast changing, even for similar models from same manufacturer. Some, although declared dimmable, show a limited dimming range, and/or can cause huge current transients.

Due to the current absence of international quality standards, it is impossible to guarantee that any market model will behave correctly and up to a maximum of 200VA, but it is often the case

If any doubt remains, Max4Tech recommends to contact your local distributor BEFORE buying the Leds. He can advise or, if needed, he can set up a test. And anyway, even with poor quality Leds, you may always try, the DimMax 420SLR will stay protected, but you may have to reduce the number of Leds to get a stable operation.

Error conditions: If an error condition occurs, the *red indicator* stop displaying the operation mode, to show the error code.

ON/OFF short flashes, permanently repeated, for *overcurrent* 
Meaning : a transient current higher than the allowed limit has occured.
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.

Hardware protections : For more safety, Dimmax 420SLR 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.

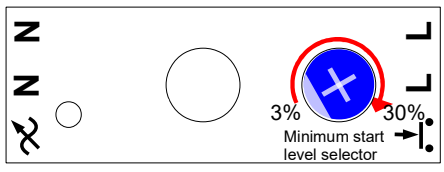
The *red indicator* goes OFF permanently when one of those protections occurs.

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 420SLR is disconnected from 230V

Minimum start level selector :

Start position of the *minimum start level selector* is fully left (factory default) = 3%. It can be adjusted up to 30%.

As soon as the selector is moved, the unit will forget its current dim level (if already ON) or will go ON (if it was OFF) in order to show on the lamps the minimum level being adjusted. Stop increasing when the lamps stay stable on.



Warning: all LED type lamps have a minimal start-up tension, this tension could be higer then the minimal dimmable value. After setting this minimal value with the regulation selector , you have to dim the lamp to his lowest intensity with the push button (long push). Stop and start again your lamp with a short push . IF the lamp doesn't start up lighting then start again all the procedure and increase with the selector the minimal value .