DINUY

INSTRUCTION MANUAL

Dimmer for LED lamps RE EL5 LE3

Dimmer for LED lamps - RE EL5 LE3

ATTENTION
- Power supply must be protected according to the current standards.
- The devices must be installed by qualified personnel without 230V~ power supply.

Description

· It is based on a trailing-edge phase control IGBT Dimmer valid for 230V~ dimmable LED lamps which support this technology.

Features

· Modular design, DIN rail mounting. Five modules wide.

· Control by: pushbutton (with or without memory), potentiometer (built-in or external) or 0/10V$_{DC}$ signal.

· The potentiometer from the front side allows to set the minimum dimming level when it is controlled by pushbutton, 0/10V signal or Master/Slave signal. This function avoids flickerings on the lamps at low dimming levels.

· Incorporates a selector switch which allows to set up the dimmer to the used LED lamp.

· Master/Slave configuration, wich enables:

- To increase the maximum load capacity per line. Unlimited number of slaves
- To control the dimmer using a remote control and an interface: CO KNX 001 + RC KNX 001.

· It incorporates a heating protection which will switch the lamps off in the event of overheating.

· Anti-panic function (optional) for safety systems: if the "Panic" jumper is opened the lamps will light at maximum, ignoring the dimming level.

Technical Specifications

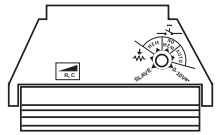
Power Supply	230V~ 50Hz
Consumption	1,5W
Load Capacity	5...1000W (*)
Control	Pushbutton, potentiometer (built-in/external) and 0-10V$_{DC}$ signal
External potentiometer value	10Kohms
Pushbuttons	Unlimited number of non-illuminated. Does not admit lighted ones.
Input impedance at 0-10V control signal	100Kohms
Dimensions	5 modules, 87,5mm wide x 65mm depth
Weight	280gr
Working temperature	-10ºC ~ +55ºC
Storage temperature	-30ºC ~ +70ºC
Terminals (power supply)	"Lift" type for wires up to 6mm^2 section
According to the Standard	EN 60669-2-1
Protection degree	IP 20

The accumulation of dimmers inside the same installation box could need forced ventilation in order to avoid excessive heating of the dimmers.

(*) MAXIMUM LOAD FOR DIMMERS NOT EXPOSED TO OTHER HEAT SOURCES OR INSTALLED INSIDE WELL DIMENSIONED AND VENTILATED INSTALLATION CABINETS

Operation

· The dimming can be performed with different controls, depending on the configuration selected:

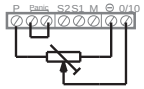


SLAVE	Slave mode
↓	Control by Potentiometer
MEM	Control by Pushbutton with Memory
NO MEM	Control by Pushbutton without Memory
AUTO	Control by Pushbutton with Status Memory
0-10V⎓	Control by 0-10V$_{DC}$ Signal

· Pushbutton control:
- Short pulse: switch ON/OFF.
- Long pulse: dim.

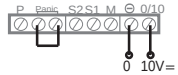
In this mode (MEM, NO MEM or AUTO) the frontal potentiometer sets the minimum dimming level. It avoids flickerings or undesired switching-offs.

· External Potentiometer control (galvanically isolated):
- It is possible to control the load with a potentiometer of 10Kohms.
- At the minimum the load will be turned-off.
- As the potentiometer is turned clockwise the light level is increased.
- It is necessary to set the built-in potentiometer at minimum.

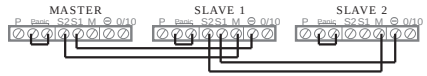


· Built-in Potentiometer:
- It is possible to control the load with the potentiometer of the dimmer.
- If this potentiometer is set at any higher value than minimum, the external potentiometer will not dim.

· 0/10V$_{DC}$ signal control (galvanically isolated):
- Any external 0-10V$_{DC}$ power supply can be used, isolated or not (PLCs,...).
- 0V: the load is switched-off.
- 10V: the load is switched-on at maximum.
- In this mode the frontal potentiometer sets the minimum dimming level. It avoids flickerings or undesired switching-offs.



· Master/Slave configuration (galvanically isolated):
- This configuration can be used when the load exceeds the maximum load that supports the dimmer.
- In this way, it is possible to distribute the load across multiple dimmers and extend the load.
- For this it is necessary to spread the load on different lines, each dimmer controlling its maximum permitted load.
- It is also indicated the use of slaves in those installations where is necessary to set different types of lamps.
- In this mode the frontal potentiometer sets the minimum dimming level. It avoids flickerings or undesired switching-offs.



· Anti-panic function:
- If this option is not used, keep the bridge between terminals (-) and (AP), thus the operation of the dimmer is normal.
- If jumper is removed, the dimmer applies the maximum power to the load and it does not respond to the orders.

· Over-temperature protection:
- It incorporates a heating protection which will switch off the lamps in case of overheating.
- If the dimmer is switched-off to auto-protect against the over-temperature, please try to:
  · Reduce the output load.
  · Install the dimmer inside an electric cabinet with forced ventilation or without other heat sources, or place them in the lower part of the cabinet, where the accumulation of heat may be lower.

· LED lamp type selector switch:
- It has a selector switch with 6 dimming curves: A, B, C, D, E and F.
- Change the control knob to choose the better dimming curve for your lamps.

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Installation

Follow these steps when installing:

1º - Configure an operating mode with the knob.

2º - Disconnect the power supply of the installation.

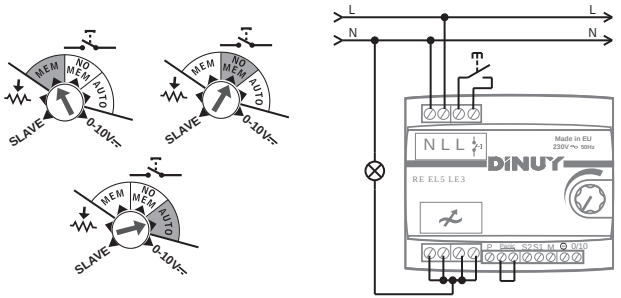
3º - Insert the dimmer on the DIN-rail of the electric cabinet. Avoid placing it together with other sources of heat, like other dimmers.
Consider the most appropiate or ventilated place.
We recommend at least one module gap between dimmers and forced ventilation in some places.

4º - Select a wiring diagram and do the installation depending on the desired operation mode.

5º - Connect the power supply.

Example 1 Controlled by pushbutton

- Place the selector switch in the desired working mode:
  - **MEM** - Lights will be turned on at the same level than when turned off for the last time.
  - **NO MEM** - Lights will be turned on at maximum level.
  - **AUTO** - Lights will be turned on at the same level than when turned off and also htey will maintain the working state (turned on/off and dimming level) when the power supply returns after an electrical cut-off.

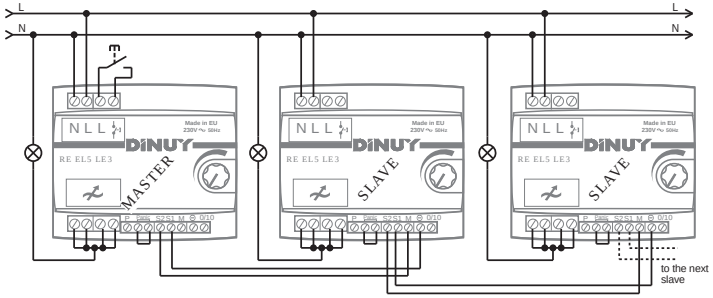


Example 2 Controlled by pushbutton and increased with Slaves

- The Master dimmer must be set according to example 1. To configure as Slave the dimmers must have the selector switch in **SLAVE** mode.

- It is possible to add an unlimited number of slaves. The only limitations are the response time delay as slaves are added and the heat dissipation capacity of the installation box.

- It is recommended to leave a minimum separation between each dimmer (1 module separation).



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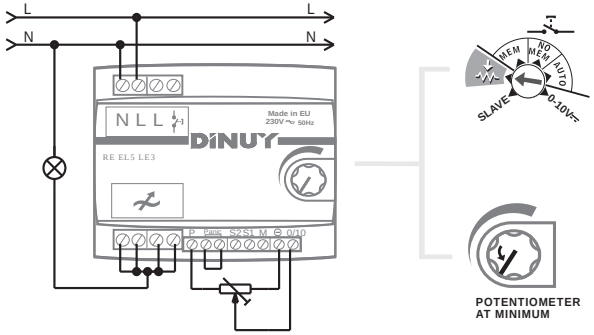
Example 3 Controlled by potentiometer

- Selector switch must be at position.

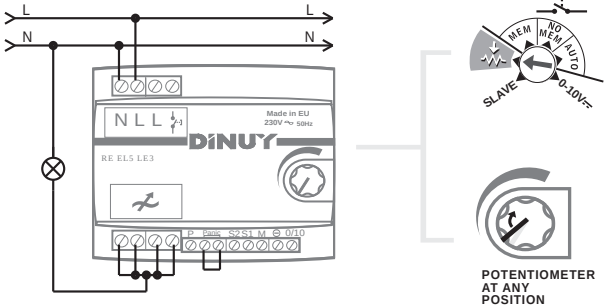
- The lighting level depends on the position of the potentiometer.

- Turning the potentiometer clockwise the light intensity will increase.

A) Control with external potentiometer.



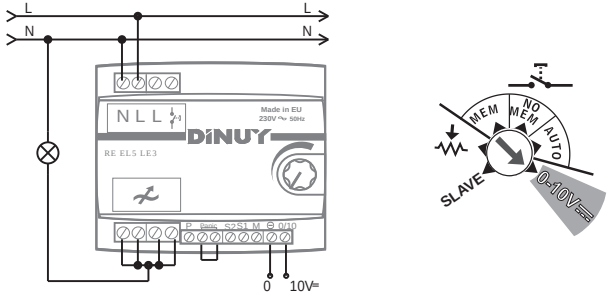
B) Control with built-in potentiometer.



Example 4 Controlled by a 0-10VDC signal

- Selector switch must be at **0-10V⎓** position.

- The 0V level corresponds to the turned-off state. As the voltage increases to 10V the light intensity increases too.



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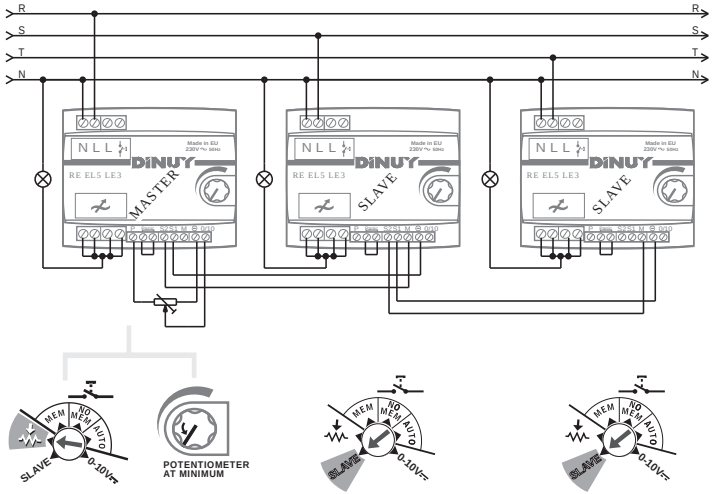
Example 5 Three-phase installation controlled by potentiometer and increased with two Slaves

- Do the installation according to the drawing. The Master's selector switch must be ser according to example 3A. The slave's selector must be set at **SLAVE** position.

- It is recommended to distribute the loads between the three phases.

- In case of three-phase line without electric neuter, please contact with our technical department.



Precautions and Limitations

- The mains supply must be protected according to existing rules.
- The devices must be installed without power supply and by qualified personnel.
- Disconnect the mains to handle the load, replacing burned-out lightbulbs, removing or adding new ones.
- Illuminated pushbuttons are not allowed.
- Do not exceed the maximum load of the device. Use the Master/Slave configuration to expand the load.
- Do not mix different types of load. Use the Master/Slave configuration to control different types of load at the same time.
- Do not install dimmers next to each other. Leave free at least one module gap between them or other sources of heat and or place them in the lower part of the cabinet, where the heat may be lower.
- Design the installation cabinet properly to avoid heat problems. In some cases may require forced ventilation.

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