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INSTRUCTIONS MANUAL

CONSTANT CURRENT CONTROL GEAR FOR LED MODULES

Street lighting applications Type: DLC ...-TN-1...10V

The constant current control gears for LED modules use sensitive electronic components and should be handled with the same care as any other electronic equipment. In order to achieve a long life and correct functioning, both in the control gear and in the LED module, it is necessary to follow these manufacturer's recommendations.

SECURITY

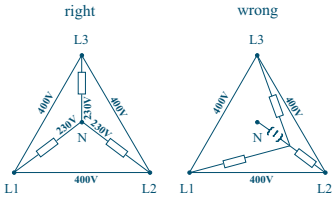
A very low voltage installation (LVI) must be carried out whilst taking the necessary precautions in order to respect the safety of all its parts. The contact or crossing between the mains supply conductors and the very low voltage installation conductors must be avoided and the insulation between the conductors must be > 4kV.
Maintenance and the changing of parts must be carried out by a qualified person with the mains disconnected and the instructions and current regulations must be strictly followed.

EARTH WIRE

The use of the earth wire is COMPULSORY. The said wire must be connected to the LED driver and the lighting fixture. It is convenient to connect the metallic structure of the suspended ceiling (if one exists) to the earth wire.

ELECTRICAL SUPPLY

The voltage and frequency of the power line must be within the normal working range specified on the equipment. The polarity indicated must be respected (phase and neutral).
In 400 V triphase installations, it must be ensured that the neutral is always connected; otherwise the 400 V could reach the equipment with the consequent risks. When the installation is being carried out the load distribution between phases must be balanced as much as possible.



INSULATION TEST

If an insulation test in the circuits which supply the LED driver in the installation is carried out, it must be done applying the test voltage between the phases and the neutrals all together and the earth wire.
The test voltage must never be applied between the phases and the neutral or between phases.

OPERATING TEMPERATURE

It must be ensured that the maximum ambient temperature in the installation does not exceed the ta marked on the equipment, and an adequate degree of protection against humidity must be provided.
Just in case an overtemperature condition is detected, due to external conditions, the incorporated sensor will decrease output power in the LED module.

WIRING AND COMPONENTS OF THE LUMINAIRE

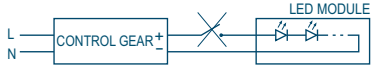
The wires used for connecting the driver to the LED module must be appropiated for the high voltage indicated in the marking.
Any derivation or electrical contact between earth and LED module wires may produce the equipment failure ; therefore, it is necessary to be extremely cautious for ensuring that all parts are well isolated.

CONNECTION

In order to keep on ensuring the wiring class II condition, so as the IP67 protection level, it is necessary to use suitable connectors.

INSTALATION

Placing a switch in the output of the control gear is not allowed. May cause damages in control gear and LED module.



Any procedure at LED module connection must be made without electrical supply.
Caution must be taken when handling the product, especially if less than a minute has passed from its last switching off condition. A high voltaje could remain in the LED module output wires. It is not allwed its electrical contact with regulation wires under any circumstances.

RADIO FREQUENCE INTERFERENCES (RFI)

ELT ensures IEC/EN 55015 (EMC) compliance in a standard luminaire, considering the supplied connection in the power supply. For other configurations or lengths, consult the Technical Department first.

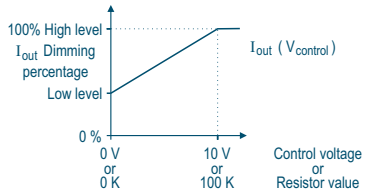
PROTECTION SWITCHES

Each group of control gear for LED modules must be protected by a magnetothermical circuit breaker and a differential dedicated circuit breaker. Equipments are resistant to transient overvoltages specified in regulations, and must be installed on different circuits separated from each other inductive loads (inductive ballasts, motors, fans etc. ....)

CONSTANT CURRENT CONTROL GEAR FOR LED MODULES AND PROTECTION SYSTEM RESPONSE				
Type	Absence of LED module. Open circuit	Overload	Short-circuit	Overtemperature
DLC ...-TN-1...10V	Blocks	Blocks	It restarts when problem is solved (*)	Power regulation

Block: the driver stays in protection situation. Later disconnection and connection will make the driver to work again.
(*) The driver is able to withstand shortcircuits produced in any installation when switching mains on, it doesn't withstand shortcicuits while normal operation. It is mandatory to switch mains off for handling LED module wires.

The dimming of the lighting is done by means of the control signal 1-10V :
10 V = Maximum Level = Control Circuit opened
0 V = Minimum Level = Control Circuit closed.
The tension of the control circuit is generated by the driver itself and is separated from the mains voltage.
In three-phase installations, the control signal can be the same for equipment connected to different phases.



ELT of interfaces	Other products market
 Bluetooth smart wireless control device for lighting control gears	 Any market system adapted to control technology 1-10V. Great ability of control, can command via radio.... For the dimming of an equipment it is possible a resistive potentiometer of 100 K - 470 K value. Standard electronic dimmer for electronic fluorescence 1-10V. Manual rotary dimming The maximum current of the control stage is 150 µA per equipment, this parameter is extremely useful to know the maximum number of drivers that can be installed with a single control interface. Sensor of light 1-10V with detection of presence incorporated and activable 1-10V. Programmable or non-programmable devices using PWM regulation.

ALLOWED OPERATION POSITIONS TO ENSURE IP67

IP67 protection is guaranted under any position. In order to keep on ensuring it beyond its own connections, suitable connectors will have to be used.

PROTECTION AGAINST ELECTROSTATIC DISCHARGES IN THE LED MODULE

Just in case that electrostatic discharge troubles were taking place in a luminaire, an auxiliary protection device ODP 5kV might be connected to the LED module, making sure that a right isolation is always present between the connection to the rest of the luminaire (>4kV).

WIRING DIAGRAMS