

INSTRUCTIONS MANUAL

CONSTANT CURRENT CONTROL GEAR FOR LED MODULES

Types: LC ...-C , LC ...-D and LCM ...-D

The constant current control gear 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



The control gear for LED modules must be installed inside the light fixture. Maintenance and replacement must be carried out by qualified personnel, with no voltage connected. The instructions given with the product and the current regulations must be strictly followed.

EARTH WIRE



The earth wire must be connected to the control gear and the light fixture. It is convenient to connect the metallic structure of the false ceiling (if one exists) to the earth wire.

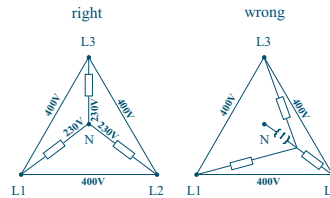
ELECTRICAL SUPPLY



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).

Operation with constant direct current is only allowed in specially designed equipments.

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.



Any procedure at LED lamp connection must be made without electrical supply.

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 the phases and the neutral or between phases.

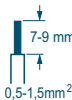
OPERATING TEMPERATURE



It must be ensured that the maximum atmospheric temperature in the installation does not exceed the t_a marked on the equipment, and an adequate degree of protection against humidity must be provided.

Under no circumstances must the t_c temperature marked on the driver's casing be exceeded due to the fact that continued operation at higher temperatures produces a progressive reduction in life expectancy.

TERMINAL BLOCK AND WIRE PREPARATION

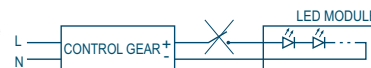


The use of only one rigid wire with a section between 0,5 and 1,5mm² and a stripped length 7-9 mm is recommended. If a previously inserted wire is to be extracted, do not use excessive force on the connection supports to avoid breaking.

INSTALLATION



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



PROTECTION SWITCHES

Each group of control gear for LED modules must be protected by a magnetothermal 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.)



Differential circuit breaker.

The function of the anti-interference filters in control gear is to divert interference to the earth wire as leakage current.
In triphase systems. Distribute the light fixtures equally between the three phases. The leakage currents will compensate each other.
In monophase systems. The use of a maximum of 35 control gears with each circuit breaker with 30mA sensitivity is recommended.



Automatic circuit breaker.

The ignition of LED modules with these control gears is simultaneous. At the moment of connection, the equipment's capacitors create a strong pulse of current of very short duration, this is called Inrush current. The installation of a maximum number of control gear depending on the type and characteristics of the magnetothermal protection is recommended. See table.

Type	Inrush Current		Max no. of equipment per circuit breaker				RCCB 30mA
	I. Peak	Time	Type B		Type C		
	A	µs	10A	16A	10A	16A	
LC ...-C LC 190/...-D LCM 90/...-D	23	100	10	13	14	22	35
LC 150/...-D LCM 50/...-D	17						

CONSTANT CURRENT CONTROL GEAR FOR LED MODULES AND PROTECTION SYSTEM RESPONSE					
Type	Absence of LED module. Open circuit	Overload	Short-circuit in output to LED module	Supply voltage > 264V	Overtemperature
LC ...-C		Over maximum power output current decreases limiting output power	Risk of fault	Risk of fault	Risk of fault
LC ...-D	Blocks: Waits for a lamp replacement	Blocks	It restarts when problem is solved		Risk of fault
LCM ...-D		Blocks	Blocks from power-ON, if different, risk of fault		Blocks

Block: The driver is in protection mode. The disconnection and connection of the mains will make operate again the equipment.

WIRING DIAGRAMS

