

INSTRUCTIONS MANUAL

CONSTANT CURRENT CONTROL GEAR FOR LED MODULES

Types: **DLCM WW / AAA...III -3B-C2-M2D**

(WW: power - AAA: minimum current - III: maximum current)

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

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.

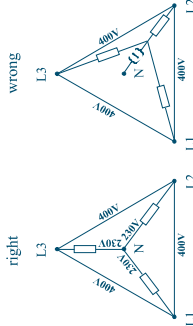


ELECTRICAL SUPPLY

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.

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



BASIC AND REINFORCED INSULATION

Electric Insulation	Input	Output	Housing	DALI	PUSH
Input	X	Reinforced	Reinforced	Basic	Non
Output	Reinforced	X	Basic	Supplementary	Reinforced
Housing	Reinforced	Basic	X	Reinforced	Reinforced
DALI	Basic	Supplementary	Reinforced	X	Basic
PUSH	Non	Reinforced	Reinforced	Basic	X

OPERATING TEMPERATURE

It must be ensured that the maximum atmospheric temperature ($-10^{\circ}\text{C} \dots +55^{\circ}\text{C}$) 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 (cord type at least H03VH2-F.) with a section of 1,0 - 2,5 mm² at the primary side and 0,75 mm² at the secondary is recommended.

If a previously inserted wire is to be extracted, press down the "push button" and remove the cable from front, do not use excessive force on the connection supports to avoid breaking. Wire preparation as below.



INSTALLATION

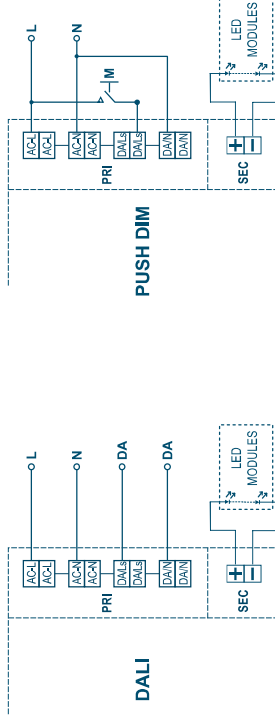
Placing a switch in the output of the control gear is not allowed. May cause damages in control gear and LED module.

Connection for LED modules shall be installed by professional person.

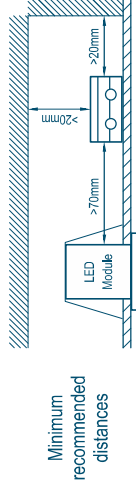


Any procedure at LED lamp connection must be made without electrical supply.

WIRING DIAGRAMS



FIXING CONDITIONS



RADIO FREQUENCY INTERFERENCES (RFI)

To comply with IEC/EN55015 (EMC), the wiring length of the load terminals must be kept as short as possible.

The mains power cables should not be crossed with the cables going to the load and separated as far as possible from these.



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 monophasic 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	Max. n° of equipments per circuit breaker		
	Inrush Current	Type B	Type C
DLCM 14/120...350-3B-C2-M2D	I. Peak	10A	16A
	Time	65	120
	A	16A	10A
	35	48	150
		6	30

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
DLCM WW / AAA...III -3B-C2-M2D	Blocks: Waits for a lamp replacement	It reduces output current, it recovers when solved	It restarts when problem is solved	Risk of fault	Block: It restarts when temperature decreases

Block: Stand-by or rest situation

TOUCH DIM

Dimming system by using standard normally open switches.

- ~ Memory function included:
 - In normal operation mode, it switches on in the dimming level existing before going to standby mode.
 - After a mains supply failure, it returns to the dimming level existing before the failure.
- ~ Control wires requirements:
 - Standards according to regulations for 230V installations.
- ~ Control signal:
 - Nominal value : 220-240 VAC / 50/60 Hz
 - Polarity free.
 - Constant voltage : Not permitted.
- ~ Maximum length of control wire from the push-button to the control gear : 105 mts.
- ~ Compensation measures must be applied for line lengths required to be more than 25 meters long (bell transformer, resistance).
- ~ The PUSH button can only be connected to the AC/L and PUSH terminals of the driver. It results in the short circuit if the PUSH button is connected to the AC/N terminal.
- ~ Maximum number of control gears per control wire : 20 units.
- ~ Maximum number of push-buttons in parallel per control wire : 20 units.
- ~ Touch DIM and DALI control modes cannot be used simultaneously.
- ~ Disconnect mains before changing between Touch DIM and DALI control modes.
- ~ Asynchronisms: the greater the number of control gears connected and the length of the line of control the more asynchronisms may appear in the power on and regulation of different points of light.

Synchronization maneuver:

- 1° - Pulse long > 0,5 seg All luminaires switch on.
- 2° - Pulse short < 0,5 seg All luminaires switch off.
- 3° - Pulse long > 0,5 seg All luminaires switch on and dimming.

Pulse type	Pulse duration	Control gears reactions
Voltage dips	< 0,04 seg	Ignore Do not change state.
Short	0,04 seg - 0,5 seg	ON / OFF (standby) Switch between on/off (standby).
Long	0,5 seg - 5 seg	Dimming Dim in the opposite direction of the last dimming mode towards either minimum or maximum light level. (2% , 100%)
Extended	> 10 seg	Reset to factory settings

DALI REGULATION

Compatible with both DALI and DALI-2.

- Addressing possible:
- Individually (max. 64 IP addresses).
 - In groups (max. 16).
 - All together.

Signal voltage requirements:

DALI input	Minimum	Typical	Maximum
High level	9,5 V	10 V	22,5 V
Low level	-6,5 V	0 V	6,5 V

- ~ The least dimming depth of DALI is of 1% * Iout.
- ~ Built-in with permanent memory: light returns to the previous dimming level when switched off and on again, even at power failure.
- ~ Supports star, tree, serial, parallel wiring ,but not supports ring wiring

DALI bus communication length and input wire section

Wire section	DALI Bus communication length
1,0 mm ²	200 m Max
1,5 mm ²	300 m Max
2,5 mm ²	300 m Max

DIP SWITCH HANDLING

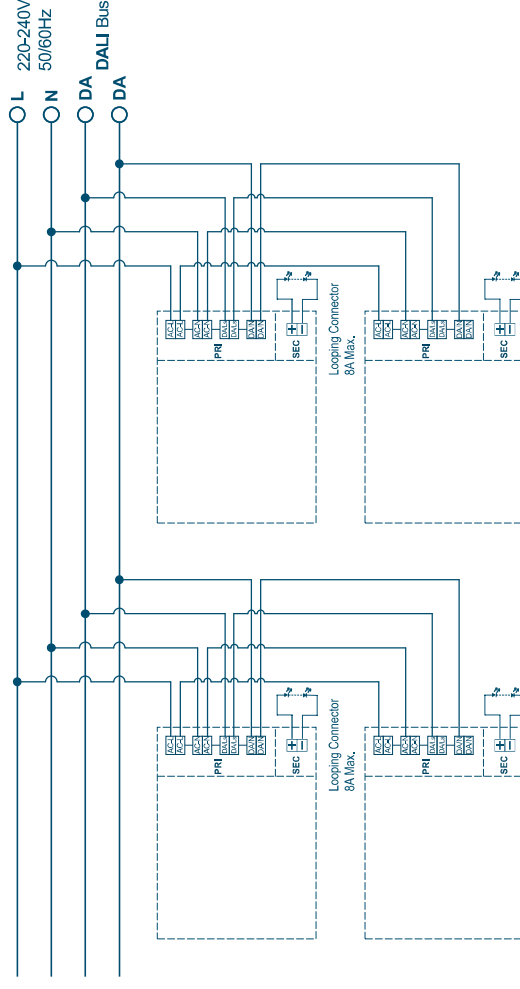
DIP switch handling once the device is working may cause its breakdown.

DLCM 14/120...350-2B-C2-M2D

P _{in} W	I _o DC mA	P _{out} W	1	2	3
120	4,8	4,8	ON	ON	ON
160	6,4	6,4	ON	—	ON
180	7,2	7,2	—	ON	—
14-40	220	8,8	ON	—	—
	250	10	—	ON	—
	280	11,2	—	—	ON
	350	14	—	—	—



LOOPING CONNECTION



OTHER CHARACTERISTICS

- ~ Thermally protected drivers arLEDs classified according to the type of protection: IC inherently protected.
- ~ The LED driver does not rely upon the luminaire enclosure for protection against accidental contact with live parts.