

The LDM Range

The **LDM** emergency control gear has been designed to be used with most LED Driver powered luminaires so that the luminaire can operate normally with mains power and provide the optimum battery powered light output in the event of a mains failure. With Lithium Iron Phosphate (LiFePO₄) batteries now fitted as standard its small design is well suited for luminaires as they become more compact. The **LDM** can be provided as a kit and has been designed to be installed inside a luminaire with the other control gear. Alternatively there is a kit option for the **LDM** to be used remotely from the luminaire when there is not enough space internally.

The **LDM** emergency LED control gear allows maintained operation of high-power LED modules, when used in conjunction with the standard mains voltage LED driver making it ideal for luminaires that need emergency conversions. The emergency control gear incorporates a module/charger and a high temperature LiFePO₄ battery. In the event of a mains failure an integral 2-pole relay disconnects the LED lighting load from the mains LED driver and then connects it to the emergency control gear which operates the LED module at an optimum light output for the rated duration.



Microprocessor enabled features

- The LED current in emergency mode is automatically adjusted for maximum light output and is constant for the entire rated duration.
- Smart charging of LiFePO₄ batteries. NB: LiFePO₄ batteries offer long life (up to 8 years)
- Details are logged of any mains failures to assist in the diagnostics of any site issues.
- The LDM range is available with fully interoperable DALI control and reporting function. These DALI versions indicated by the suffix D, also provide automatic Self Test when no DALI bus is connected.
- The LDM can be programmed for 1hr and 3hr duration times.

LDM emergency control gear

To ensure the correct operation of each type of LED modules the correct LDM equipment should be selected. The total forward operating voltages of the LED module / arrays connected should be used to determine the appropriate LDM control gear.

For the appropriate battery, indicator LED etc. See the order codes on the last page.



Total Forward Operating Voltages

12 - 90V **LDM90LI, LDM90LID, LDM90MO, LDM90MOD, LDM90HO, LDM90HOD**

60 - 200V **LDM200LI, LDM200LID, LDM200MO, LDM200MOD, LDM200HO, LDM200HOD**

Note: High output (**HO**) control gear provides approximately twice the output of the standard control gear

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LED Module Emergency Control Gear

LDM Range

SPECIFICATION

Section	Subject	Plastic housed module
Environmental	Protection against electric shock	Class II
	Ingress protection	IP20
	Module rated operating ambient temperature)	-20°C to 50°C
	Battery rated operating ambient temperature	0°C to 55°C
	Maximum case temperature	60°C
Mains Operation	Rated voltage supply	220/240 VAC
	Mains frequency	50/60 Hz
	Mains supply current	<18mA
	Mains supply power	4W
	Power factor	0.53C
	Mains overvoltage protection	320V for 1 hour
	Indicator LED	2 wire green colour – standard LDM 2 wire red/green – DALI LDM
	Maximum power that can be switched via relay contacts	150W
	Maximum current that can be switched via relay contacts	3A
	Maximum voltage that can be switched via relay contacts	250VAC/220VDC
Emergency Operation	Emergency duration	1 or 3 hours
	Battery chemistry type	LiFePO ₄
	Number and type of high temperature cells LDM90LI, LDM200LI, LDM90LID and LDM200LID	2 x LiFePO ₄ 1.8Ah 18650 cells
	LDM90MO, LDM200MO, LDM90MOD and LDM200MOD	2 x LiFePO ₄ 2.3Ah 22650 cells
	LDM90HO, LDM200HO, LDM90HOD and LDM200HOD	2 x LiFePO ₄ 3.4Ah 26650 cells
	Battery recharge period	<24 hours
	Time to full illuminance	<0.5 seconds
	Short-circuit-proof battery connection, polarity reversal and deep discharge protection	
	Battery charge current LiFePO ₄ 1.8Ah, 2.3Ah and 3.4Ah cells – voltage dependent, constant current	0-150mA
	Battery discharge current range (at nominal battery voltage) LiFePO ₄ 1.8Ah 18650 cells LiFePO ₄ 2.3Ah 22650 cells LiFePO ₄ 3.4Ah 26650 cells	360mA to 560mA (450mA) 475mA to 735mA (550mA) 650mA to 1000mA (750mA)
	Module operating current – see graphs on following pages LDM90LI and LDM90LID	150mA to 19mA ±10%
	LDM90MO and LDM90MOD	220mA to 30mA ±10%
	LDM90HO and LDM90HOD	275mA to 41mA ±10%
	LDM200LI and LDM200LID	33mA to 10mA ±10%
	LDM200MO and LDM200MOD	42mA to 12mA ±10%
	LDM200HO and LDM200HOD	57mA to 18mA ±10%
	Module output voltage range (nominal power) LDM90LI and LDM90LID	12V to 90V (1.6W)
	LDM90MO and LDM90MOD	12V to 90V (2.6W)
LDM90HO and LDM90HOD	12V to 90V (3.5W)	
LDM200LI and LDM200LID	60V to 200V (2.0W)	
LDM200MO and LDM200MOD	60V to 200V (2.4W)	
LDM200HO and LDM200HOD	60V to 200V (3.5W)	
EOFI – dependant on LED module type	0.12 to 0.25	
A record is kept of the number and length of emergency and mains operations	This information can be downloaded via the internal programming connector	
Mechanical	Module outside dimensions	(L)178mm x (W)30mm x (H)21mm
	Electrical connections	Push wire terminals
Standards compliance	EN61347-1, EN61347-2-7, EN61347-2-13 and EN62384	Yes
	EN62034*, EN62386-101*, EN62386-102* and EN62386-202*	Yes
	EN55015	Yes
	EN61547	Yes
	Marks ENEC and CE	Yes

Note: Values are subject to change. *DALI/Self-Test control gear only

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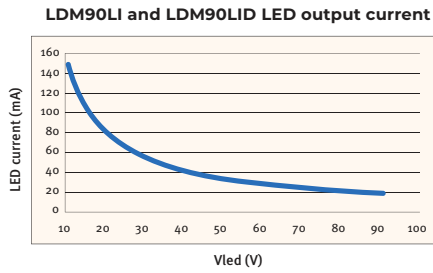


LDM Range

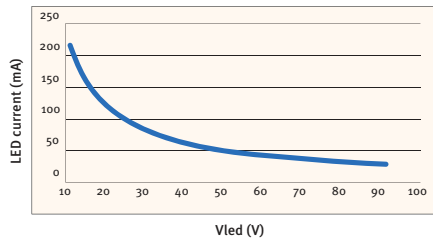
EMERGENCY LIGHTING PERFORMANCE FOR LED MODULES WITH DIFFERENT OPERATING VOLTAGES

LEDs WITH FORWARD OPERATING VOLTAGES

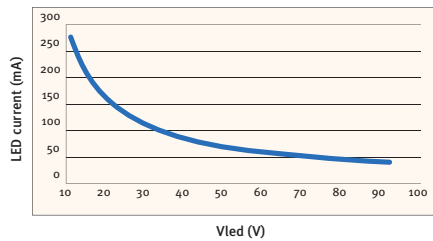
12V - 90V



LDM90MO and LDM90MOD LED output current

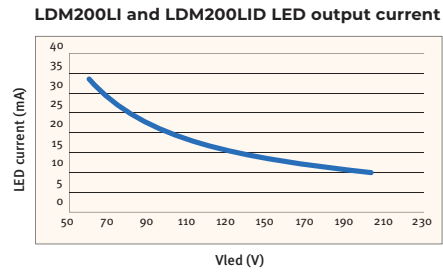


LDM90HO and LDM90HOD LED output current

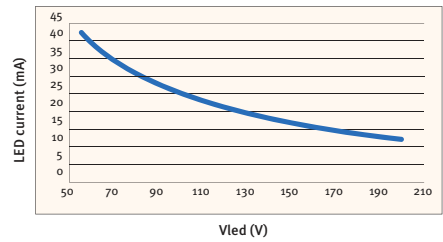


LEDs WITH FORWARD OPERATING VOLTAGES

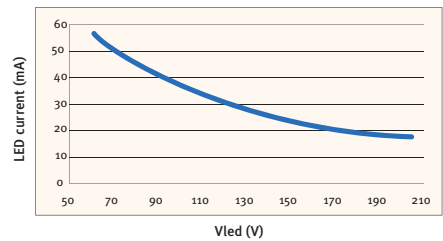
60V - 200V



LDM200MO and LDM200MOD LED output current



LDM200HO and LDM200HOD LED output current



NB: EOFI (Emergency output factor of the forward voltage) is given by:-

Emergency LED current / Rated mains LED current

LDM Range

	Order Codes	Description
Emergency lighting control gear	LDM90LI	12V to 90V Standard output module c/w indicator LED
	LDM90LID	12V to 90V DALI/Self-Test standard output module c/w indicator LED
	LDM90MO	12V to 90V Medium output module c/w indicator LED
	LDM90MOD	12V to 90V DALI/Self-Test medium output module c/w indicator LED
	LDM90HO	12V to 90V High output module c/w indicator LED
	LDM90HOD	12V to 90V DALI/Self-Test high output module c/w indicator LED
	LDM200LI	60V to 200V Standard output module c/w indicator LED
	LDM200LID	60V to 200V DALI/Self-Test standard output module c/w indicator LED
	LDM200MO	60V to 200V Medium output module c/w indicator LED
	LDM200MOD	60V to 200V DALI/Self-Test medium output module c/w indicator LED
	LDM200HO	60V to 200V High output module c/w indicator LED
	LDM200HOD	60V to 200V DALI/Self-Test high output module c/w indicator LED
	<i>Note:</i> The suffix D is for DALI/Self-Test control gear	
Kit options	/K	Geartray kit including LED indicator, clip, battery, battery lead, battery end-caps & terminal covers
	/K/NC	Geartray kit including LED indicator, clip, battery, battery lead & battery end-caps
	/K/TU	Remote kit including LED indicator, clip, battery in protective tube, battery lead, battery end-caps & terminal covers
Batteries	B091T (for LDM90LI, LDM90LID, LDM200LI & LDM200LID)	1 x 2 cell stick - LiFePO ₄ 1.8Ah 18650 cells (EN 62620 designation - lfpR1865[1P2S]M060NA)
	B092T (for LDM90MO, LDM90MOD, LDM200MO & LDM200MOD)	1 x 2 cell stick - LiFePO ₄ 2.1Ah 22650 cells (EN 62620 designation - lfpR2265[1P2S]M060NA)
	B093T (for LDM90HO, LDM90HOD, LDM200HO & LDM200HOD)	1 x 2 cell stick - LiFePO ₄ 3.0Ah 26650 cells (EN 62620 designation - lfpR2665[1P2S]M060NA)
Battery Connectors	BL018/T/2W (500mm)	Battery connectors for use with LiFePO ₄ 18650, 22650 & 26650 cells
	BL019/T/2W (100mm)	
Battery End-caps	B040	18650 cell end-cap (Note: 2 end-caps are required for B091T)
	B050	22650 cell end-cap (Note: 2 end-caps are required for B092T)
	B035	26650 cell end-cap (Note: 2 end-caps are required for B093T)
Indicator LED	LED1000G/HB (1000mm)	High brightness green charge indicator assembly
	LED1000/GRN/RED (1000mm) S066	DALI/Self-test high brightness bi-colour green/red charge indicator assembly Indicator LED clip
Options for independent control gear	H222	Terminal covers / clamp set (2 supplied) cover set
	/TU	Add /TU to battery part number for battery housed in remote polycarbonate tube