

LED Module Emergency Control Gear

LDM Range

The ELP ENEC marked **LDM** emergency LED control gear allows emergency lighting operation of high-power LED modules when used in conjunction with the standard mains voltage LED control gear.

The emergency control gear incorporates a module/charger and a high temperature Nickel Cadmium or Lithium Iron Phosphate (LiFePO₄) battery. In the event of a mains failure an integral 2-pole relay disconnects the LED lighting load from the mains control gear 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 both Nickel Cadmium and Lithium Iron Phosphate batteries. **NB:** Lithium Iron Phosphate batteries offer long life (up to 10 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.

It is important to note that some LED mains control gear should not be operated with an open circuit load, to overcome this problem when first powering up, the **LDM** range features a live in/live out relay which ensures the load is in place before the mains driver is powered up.

In Self-test mode the function and duration tests will take place at randomised times. If required, duration testing can be programmed by turning the unswitched supply off and on 3 times in 10 seconds at the required time. **Note:** The function test will occur weekly at the same time.

LDM EMERGENCY CONTROL GEAR

To ensure the correct operation of each type of LED module 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 Order Codes](#).

Note: All **LDM** modules can be equipped with **SurePath BLE** Bluetooth addressable Gateway modules. [See Data Sheet](#).



Total Forward Operating Voltages

12 - 90V **LDM90, LDM90D, LDM90MO, LD90MOD, LDM90HO, LDM90HOD**

60 - 200V **LDM200, LDM200D, LDM200MO, LDM200MOD, LDM200HO, LDM200HOD**

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



SPECIFICATION

Section	Subject	Plastic housed module
Environmental	Protection against electric shock	Secondary outputs — SELV for output voltage < 100V
	Ingress protection	IP20
	Module rated operating ambient temperature)	-20 to 50°C
	Battery rated operating ambient temperature	0 to 55°C
	Maximum case temperature	65°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 1hour
	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
Battery chemistry type		NiCd or LiFePO ₄
Number and type of high temperature cells LDM90 and LDM90D		4 x NiCd 1.8Ah sub-C cells
LDM200 and LDM200D		5 x NiCd 1.8Ah sub-C cells
LDM90MO, LDM200MO, LDM90MOD and LDM200MOD		2 x LiFePO ₄ 2.1Ah 26650 cells
LDM90HO, LDM200HO, LDM90HOD and LDM200HOD		2 x LiFePO ₄ 3Ah 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 NiCd 1.8Ah sub-C cells 2 stage charge — boost / trickle LiFePO ₄ 2.1Ah and 3Ah cells — voltage dependent, constant current		100mA/70mA ±10% 0-150mA
Battery discharge current range (at nominal battery voltage) NiCd 1.8Ah sub-C cells LiFePO ₄ 2.1Ah 26650 cells LiFePO ₄ 3Ah 26650 cells		360mA to 560mA (450mA) 475mA to 735mA (550mA) 650mA to 1000mA (750mA)
Module operating current — see graphs on following pages LDM90 and LDM90D		134mA to 19mA ±10%
LDM90MO and LDM90MOD		200mA to 30mA ±10%
LDM90HO and LDM90HOD		258mA to 41mA ±10%
LDM200 and LDM200D		33mA to 10mA ±10%
LDM200MO and LDM200MOD		40mA to 12mA ±10%
LDM200HO and LDM200HOD		57mA to 18mA ±10%
Module output voltage range (nominal power) LDM90 and LDM90D		12V to 90V (1.6W)
LDM90MO and LDM90MOD		12V to 90V (2.6W)
LDM90HO and LDM90HOD		12V to 90V (3.5W)
LDM200 and LDM200D		60V to 200V (2.0W)
LDM200MO and LDM200MOD	60V to 200V (2.4W)	
LDM200HO and LDM200HOD	60V to 200V (3.5W)	
EOF ₁ — 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
	Fixing centres	174mm
	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 CE	Yes

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



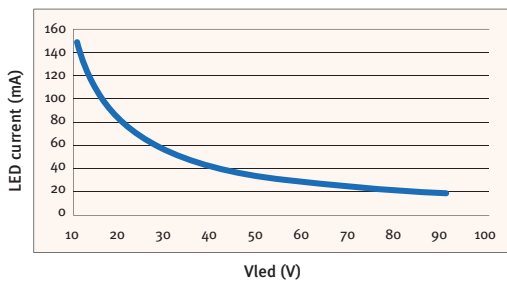
LED Module Emergency Control Gear

EMERGENCY LIGHTING PERFORMANCE FOR LED MODULES WITH DIFFERENT OPERATING VOLTAGES

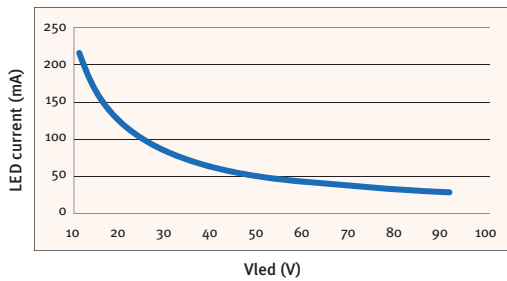
LEDs WITH FORWARD OPERATING VOLTAGES

12V - 90V

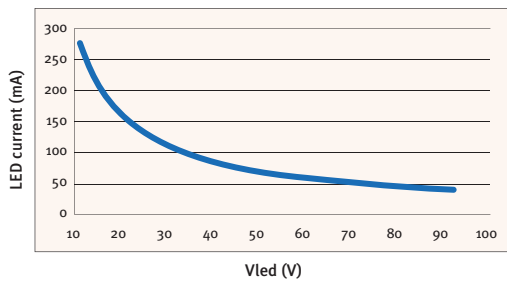
LDM90 and LDM90D LED output current



LDM90MO and LDM90MOD LED output current



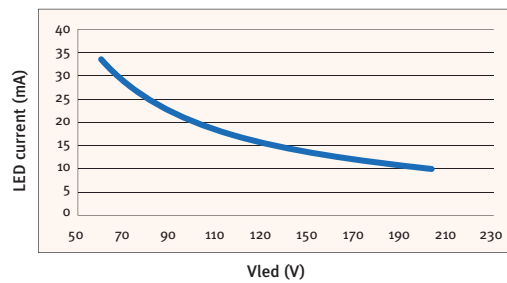
LDM90HO and LDM90HOD LED output current



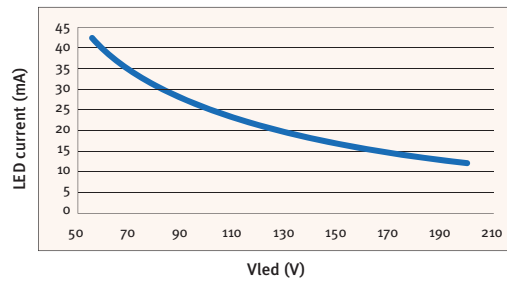
LEDs WITH FORWARD OPERATING VOLTAGES

60V - 200V

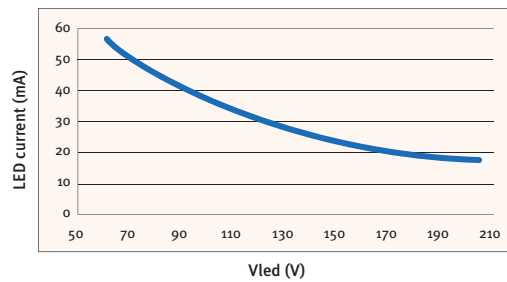
LDM200 and LDM200D LED output current



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

LED Module Emergency Control Gear

	ORDER CODES	Description
Emergency lighting control gear	LDM90	12V to 90V Standard output module
	LDM90D	12V to 90V DALI/Self-Test standard output module
	LDM90MO	12V to 90V Medium output module
	LDM90MOD	12V to 90V DALI/Self-Test medium output module
	LDM90HO	12V to 90V High output module
	LDM90HOD	12V to 90V DALI/Self-Test high output module
	LDM200	60V to 200V Standard output module
	LDM200D	60V to 200V DALI/Self-Test standard output module
	LDM200MO	60V to 200V Medium output module
	LDM200MOD	60V to 200V DALI/Self-Test medium output module
	LDM200HO	60V to 200V High output module
	LDM200HOD	60V to 200V DALI/Self-Test high output module
Note: The suffix D is for DALI/Self-Test control gear		
Batteries	B082 (for LDM90 and LDM90D)	1 x 4 cell — NiCd 1.8Ah sub-C cells
	B085 + B086 (for LDM200 and LDM200D)	1 x 2 cell + 1 x 3 cell sticks — NiCd 1.8Ah sub-C cells
	B092 (for LDM90MO and LDM90MOD) LDM200MO and LDM200MOD	1 x 2 cell stick — LiFePO ₄ 2.1Ah 22650 cells (EN 62620 designation — IFpR2265 [1P2S] M060NA)
	B093 (for LDM90HO, LDM90HOD, LDM200HO and LDM200HOD)	1 x 2 cell stick — LiFePO ₄ 3Ah 26650 cells (EN 62620 designation — IFpR2665 [1P2S] M060NA)
Battery connectors	BL015	1 x red and 1 x black 0.5m leads for use with B082 and B085 and B086
	BL016	1 x white 0.15m lead for use with B085 and B086
	BL018	1 x battery connector for use LiFePO ₄ 26650 & 22650 cells
Battery end caps	B050	Sub-C cell end cap (Note: 2 end caps are required for B082, B092 and 4 end caps are required for B085 and B086)
	B035	26650 cell end cap Note: 2 end caps are required for B093
Indicator LED	LED1000/G/HB	High brightness green charge indicator assembly — 1m length
	LED1000/GRN/RED	DALI/Self-Test high brightness bi-colour green/red charge indicator assembly — 1m length
	S066	Indicator LED clip
	H222	Terminals cover / clamp set (2 supplied)
	TU	Add /TU to battery part number for battery housed in polycarbonate tube

All details and specifications shown in this document are deemed correct at time of publication. The right to modify equipment, change specifications and instructions without notice, is reserved as part of the Emergency Lighting Products Limited policy of continuous development and improvement. We endeavour to keep all our customers informed of any alterations as and when they occur.

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