

EMERGENCY LIGHTING ELCEM81 DALI-2

Features

- For LED module with a forward voltage of 5.5-6.5Vdc
- Self-contained emergency lighting LED driver with DALI-2 interface and automatic test function
- ELCEM81 is SELV output voltage
- Easy to install the product
- Plug-in Lithium Iron Phosphate battery
- Constant power output, output current self-adjustable
- Automatic shutdown of output if LED load is out of range
- 5 years guarantee electronic

Functions

- Non-maintained operation
- DALI-2 function
- The product can switch the emergency power output through the switch
- Electronic charge system
- Deep discharge protection
- Short-circuit-proof battery connection
- Open-circuit-proof
- Polarity reversal protection for battery



220-240V
AC
50/60Hz

LED

LiFePO4

CE

110

SELV

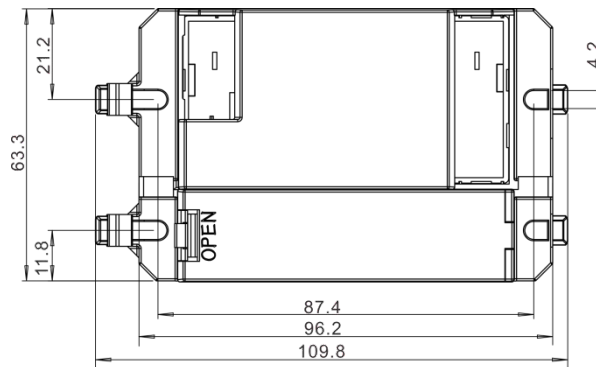
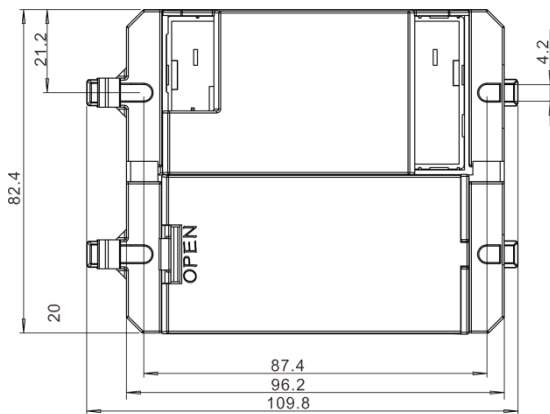
SELV

DALI-2

DALI-2

EL-T

Dimensions



Unit: mm



Item Code	Carton size	QTY	Weight per pc.	Battery
81-DL-1.2W-1H 81-DL-1.2W-3H 81-DL-2.5W-1H Single battery compartment series	382*250*170	35PCS	120g	18650 1 cell
81-DL-2.5W-3H Side-by-side battery compartment series	382*250*170	35PCS	160g	18650 2 cells

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Technical Data

Rated supply voltage	220-240VAC
AC voltage range	144-187VAC
Mains frequency	50/60Hz
Power factor	≥0.5
Starting time	< 1s
Output overvoltage protection	10V
U-OUT(including open-/short-circuit and double load) U-OUT	10V
Ambient temperature ta	5-55°C
Max. Casing temperature tc	75°C
IP rating	IP20
In-rush current	3A
In-rush current duration	3.5ms
Mains surge capability (between L – N)	1KV
Maximum withstand voltage	2KV+4U
Withstand time	60s

Item Code	Typical output emergency power	Mains input current, min	Mains input current, max	Input power in mains operation, min/	Input power in mains operation, max
ELCEM81-DL	1.2W	0mA	30mA	0W	3.5W
	2.5W				

Item Code	LED module forward voltage range Min-Typ-Max	LED module forward current range Min-Max	LED module forward power range Min-Max
ELCEM81-DL-1.2W	5.5-6-6.5V	110-180mA	0.7-1W
ELCEM81-DL-2.5W		230-350mA	1.5-1.95W

Note:

- 1.All specifications are typical at 25°C unless otherwise stated.
- 2.All specifications are typical on the 230VAC unless otherwise stated.

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DALI Control

A DALI command from a suitable control unit can be used to initiate function and duration tests at individually selected times. Status flags are set for report back and data logging of results.

When a DALI bus has not been connected or when a DALI bus is connected but the DALI default DELAY and INTERVAL times have not been re-set by sending appropriate DALI commands, then the ELC81 will conduct self-tests in accordance with the default times set within the EEPROM.

These default times are factory pre-set, in accordance with the DALI standard EN 62386-202, to conduct an automatic function test every 7 days and a duration test every 52 weeks. Since the DELAY time is factory pre-set to Zero, all units are tested at the same time. Test times can be changed with a command over the DALI bus.

The DELAY and INTERVAL time values must be re-set when the emergency system test times are to be scheduled by a DALI control and monitoring system. Note that once the default values have been set to Zero, tests will only be conducted following a command from the control system. If the DALI bus is disconnected the ELC81 does not revert to self-testing mode.

Addressing:

For single handed addressing using this method it is necessary to send a broadcast ident command every 3 to 9 seconds. During this command the LEDs will be switched off and the indication LED will flash the 6 bit binary address preceded by a 3 second start indication period.

Rest Mode / Inhibit Mode:

Emergency operation is automatically started when the mains supply is switched off.

If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output.

If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically switched on if the mains supply is switched off within 15 minutes. REST Mode and Inhibit Mode can be initiated by the DALI controller. The REST command has to be sent after the mains supply has been disconnected and whilst the ELC81 is in emergency operation. The inhibit command has to be sent while the ELC81 is supplied by mains. After a mains reset the ELC81 exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by sending the RE-LIGHT/RESET inhibit command.

LED Indication	Status	Description
Permanent Green	Standby ,System OK	Mains Operation ,battery is charged
Fast flashing Green (0.25s on 0.25s off)	Function test underway	Function test underway
Slow flashing Green (1s on 1s off)	Duration test underway	Duration test underway
Permanent Red	Lamp failure	Open Circuit or Short circuit or LED failure
Fast flashing Red (0.25s on 0.25s off)	Battery capacity failure	Battery failed duration test
Slow flashing Red (1s on 1s off)	Battery fault	Incorrect battery voltage or Short circuit or Open Circuit
Green and Red off	Battery Operation	Emergency mode:Mains disconnected or Mains failure
Slow flashing Red (1s on 3s off)	Battery temperature error	When power on and battery temperature is above 60(±2) °C or below 0(+2) °C

Notice

Fault status:

If an error is detected, the indicator LED will switch to RED. If the error has been corrected please re-connecting the battery after the mains power off, the indicator LED immediately will switch back to GREEN when mainspower on.

Notice

Battery failed duration test:

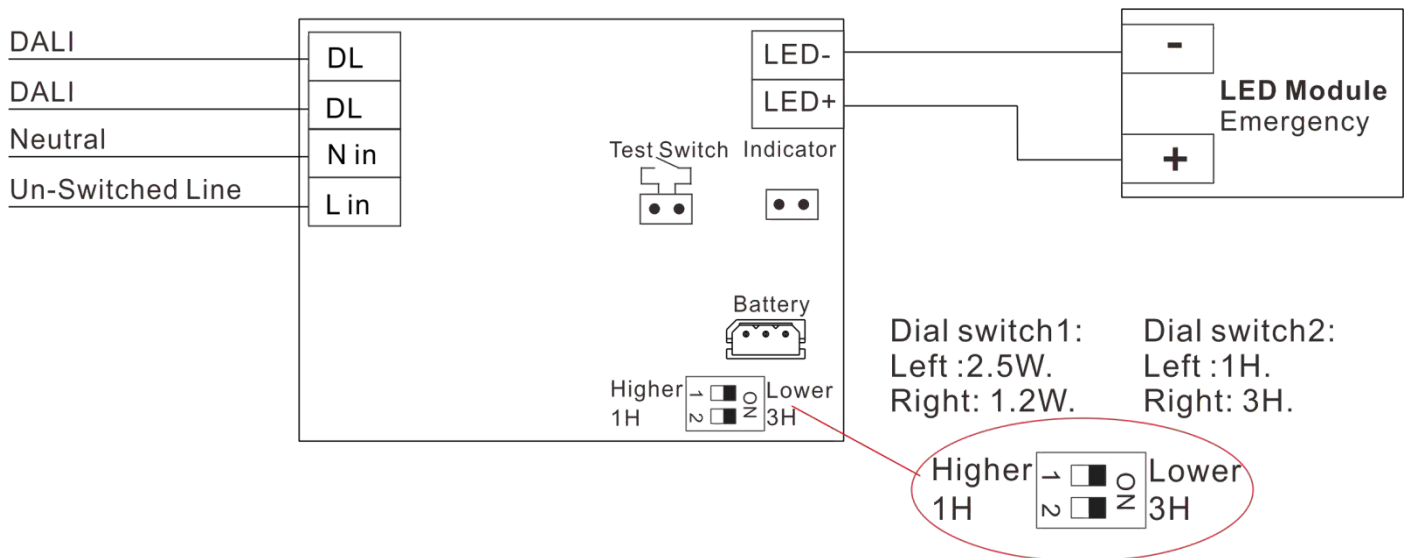
After an exchange of the battery and holding down the button (>10S) reset the timer, the indicator LED will switch to GREEN.

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Wiring Diagram

U-OUT of the LED drive is 10V



Notice:

With the following cases, the indicator will be off:

1. Mains power off, the light goes into emergency mode.

Requirements for LED Control gear:

- 1.The load voltage range is 5.5-6.5V

Function switching:

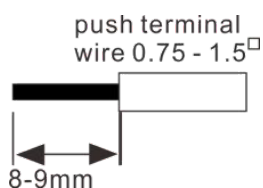
According to the diagram, the emergency power output and emergency time can be switched via the switch.

Note:

- 1.Please noted that functions switching by dial switch would only be available when all the wiring is disconnected, including the AC input, DC output and the battery.
- 2.Checking battery capacity before doing switch.

Requirements for wiring wires:

- 1.Wire diameter range: 0.5-1.5 square millimeters;



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Battery Data

Emergency power	Batteries	Emergency Duration	Battery discharge current Min-Typ-Max	Battery output power Min-Typ-Max	Battery fully charged time	Charge Current	Battery discharge voltage Min-Typ-Max	
1.2W	18650/3.2V/1500mAhLiFePO4	1h	300-400mA	1-1.2-1.3W	24h	250-300mA	2.0-3.2-3.65V	
		3h						
2.5W	18650/3.2V/1500mAhLiFePO4	1h	600-850mA	2.2-2.4-2.65W				
	18650/3.2V/3000mAhLiFePO4	3h						

Note:

Automatically charge when the voltage of a single battery drops below 3.4V. When the voltage of a single battery exceeds 3.65V, the charger turns off (0mA).

If the battery temperature is above 60 (± 2 °C) or below 0 (+2 °C) , the battery will stop charging.

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL22.3 (abnormal operating conditions).

When the voltage of a single battery is below min 2.0 V, the battery will not enter an emergency state.

The minimum charging environment temperature of the battery is 5°C , to ensure that the battery can be charged

Capacity	1.5/3.0Ah
International designation	IFpR 18/65
Battery voltage/cell	3.2V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5°Cto+55°C
5 years design life	+5°Cto+45°C
6 years design life	+5°Cto+35°C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70°C
Max. number discharge cycles	50 cycles total
Max. storage time	6 months

Notice: Storage condition

Batteries should be stored within the specified temperature range in low humidity conditions.

Optimal storage conditions are

- Temperature: -20°C to +40°C

- Humidity: 45%- 85%

Avoid atmosphere with corrosive gas

It is recommended to disconnect the battery before storage or delivery

Battery should be charged every three months in order to keep it's initial performance.

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Standard

This product meets the following standards:

- EN IEC61347-2-7
- EN 61000-3-2
- EN 61547
- EN IEC61347-2-13
- EN 61000-3-3
- EN 55015
- EN IEC61347-1
- ROHS 2.0



Status indication bi-colour LED

Two-colour status display LED
Green:system OK,Red:fault
Plug connection
Opening size:6*6mm
Line length:12cm/23cm/50cm/1m/2m



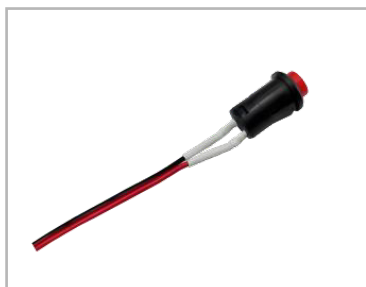
Test switch

For connection to the emergency lighting unit
For checking the device function
Plug connection
Dielectric strength:500V AC for 60 seconds
Opening size:7.5*7.5mm
Line length:12cm/23cm/50cm/1m/2m



Test switch

For connection to the emergency lighting unit
For checking the device function
Plug connection
Dielectric strength:1KV AC for 60 seconds
Opening size:7.5*7.5mm
Line length:12cm/23cm/50cm/1m/2m



Test switch

For connection to the emergency lighting unit
For checking the device function
Plug connection
Dielectric strength:500V AC for 60 seconds
Opening size:12*12mm
Line length:12cm/23cm/50cm/1m/2m



Integrated waterproof button indicator light

For connection to the emergency lighting unit
For checking the device function
Plug connection
Dielectric strength:1000V AC for 60 seconds
Two-colour status display LED
Green:system OK,Red:fault
Opening size:12*12mm
Line length:12cm/23cm/50cm/1m/2m



White indicator base

For fixation status indication bi-colour LED
Opening size:19*19mm

Battery extension cable

Cable length:
60mm/150mm/200mm/350mm
3-pole plug connection

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■ Service Life

Average life-time 50,000 hours under rated conditions with a failure rate of less than 10% for the emergency converter as rated power. Average failure rate of 0.2% per 1000 operating hours.

■ Important

The unit use dangerous mains voltage, it should be installed by qualified electricians only according to European safety standard or relevant nation regulations.

The emergency converter can only be used with the LED lamps and only suitable for use in indoors. Protect the electronics converter against excessive heat.

Connect the LED lamps to the emergency converter with correct polarity according to the schematic drawing.

The maximum length of the output cable to the LED lamps should not exceed 3m according to the EMC standard.

Connect the unit to AC power only after the wiring been completed between emergency converter and LED lamps.

About such situations, no ability can be taken over for possible damage: the emergency converter is used for purposes other than originally intended; connected in the wrong way.

Battery should be charged every three months in order to keep it's initial performance.

The emergency function test must be performed when a battery is fully charged for 24 hours.

The controlgear is not intended for use in luminaries for high-risk task area lighting.

The recharging device will recharge the battery ESSS normally after removal the short circuit link (S/C battery +/-) and reconnecting the ESSS.

The electric source for safety service is not a user serviceable item and shall only be replaced by the manufacturer service agent or a similar qualified person.

Insulation between battery circuits / indicator circuits / MT (ATS) circuits and normal supply fulfils reinforced insulation for all models.

Insulation between battery circuits / indicator circuits / MT (ATS) circuits and LED circuits fulfils reinforced insulation for all models.

If a LED driver is used with these control gears, The LED driver shall be in compliance with IEC/EN 61347-2-13 and shall provide double or reinforced insulation between input circuits and output circuits

For built-in convertors: rely upon the luminaire enclosure for protection against electric shock.

Test switch and indicator can only be used internally.

The controlgear relies upon the luminaire enclosure for protection against accidental contact with live parts.

The circuit is protected after a battery short circuit after the battery is restored, the charging circuit can charge normally.

The emergency converter is not proof against supply voltage polarity reversal.

The controlgear is suitable for use only on battery supply not having a trickle or intermittent re-charging circuits.