Emergency Battery Back Pack for LED, UL

Supplemental EM mode driver - Runs parallel with fixture driver

LMDP-4702/4703-1

- **Terminal block**
- **Separate battery pack**
- **Factory install**

LMDP-4702/4703-2

- **External wire**
- **Integrated battery pack**
- **Field installation allowed**

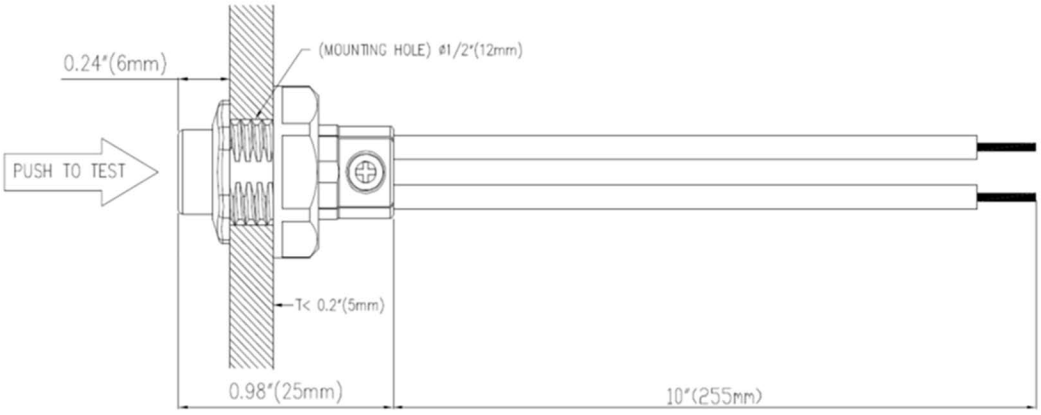
LMDP-4702/4703-3

- **Flexible conduit feed**
- **Integrated battery pack**
- **Field installation allowed**

- Constant emergency power output: Class 2, output voltage (10-60V), output current auto adjustable.
- Auto test function reduces maintenance cost.
- Slim aluminium housing
- Suitable for indoor, dry and damp applications
- Class I, UL approved

Item Codes	
LMDP-4700	**5 watts Em mode output fixed (Factory code 184700)**
LMDP-4701	**9 watts Em mode output fixed (Factory code 184701)**
LMDP-4702	**15 watts Em mode output fixed (Factory code 184702)**
LMDP-4703	**25 watts Em mode output fixed (Factory code 184703)**

Test Switch



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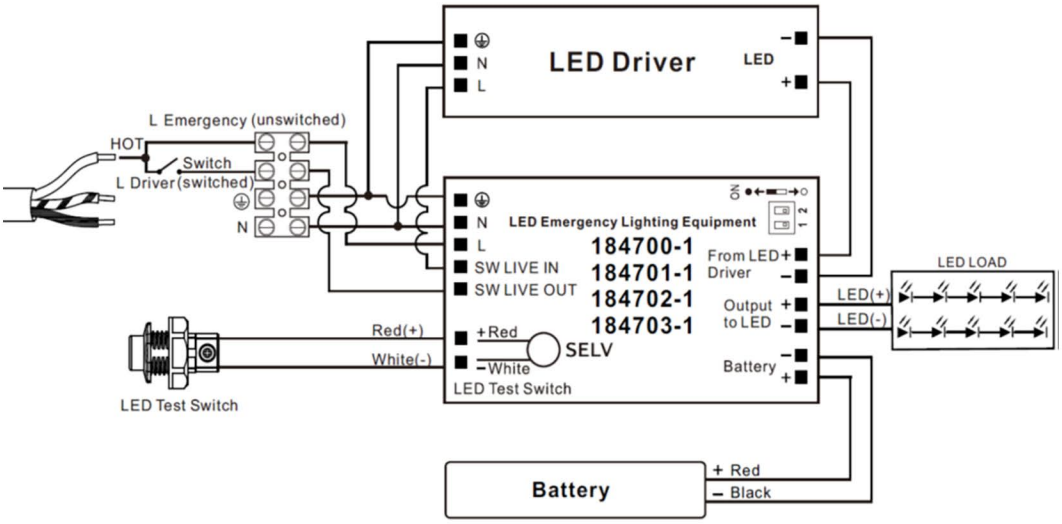
Wiring diagram

LMDP-4702-1

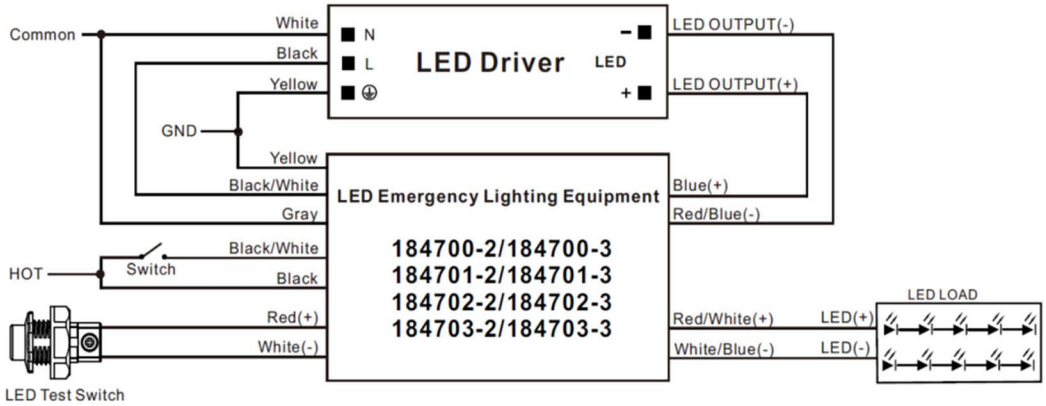
LMDP-4703-1



Wiring diagram

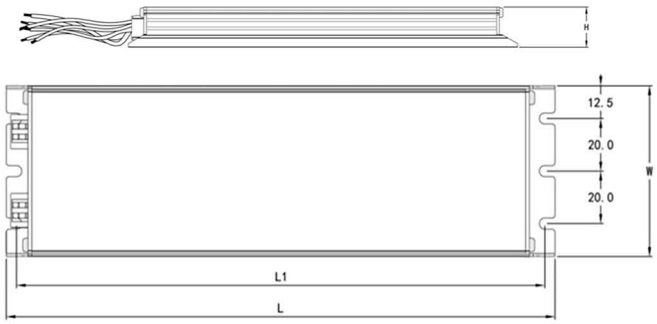
LMDP-4702/4703-2

LMDP-4702/4703-3



LMDP-(4700 to 4703)-2

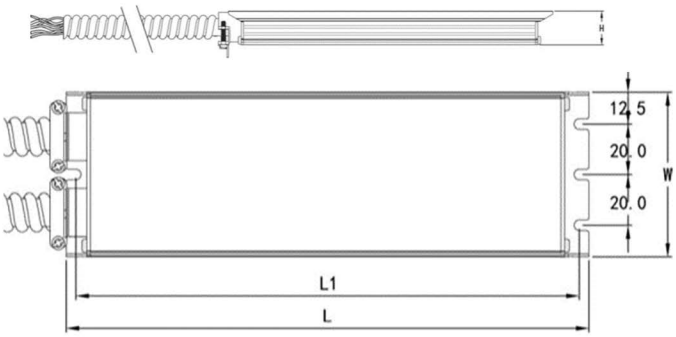
Item No.	L	L1	W	H
184700-2	260	252	65	22
184701-2	307	299	65	22
184702-2	372	364	65	22
184703-2	395	387	82	30



Dimension unit: mm
Dimension tolerance: ±1mm

LMDP-(4700 to 4703)-3

Item No.	L	L1	W	H
184700-3	260	252	65	22
184701-3	307	299	65	22
184702-3	372	364	65	22
184703-3	395	387	82	30



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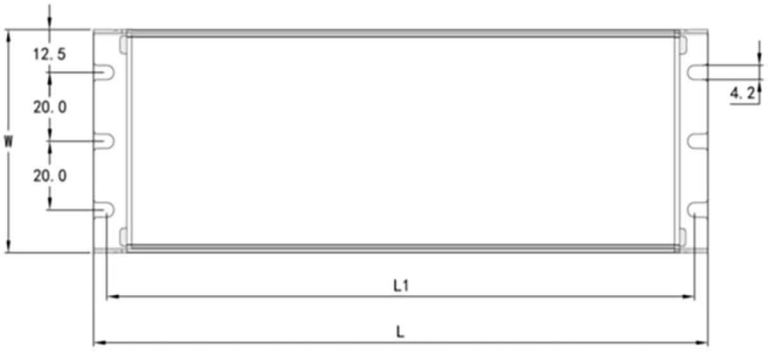
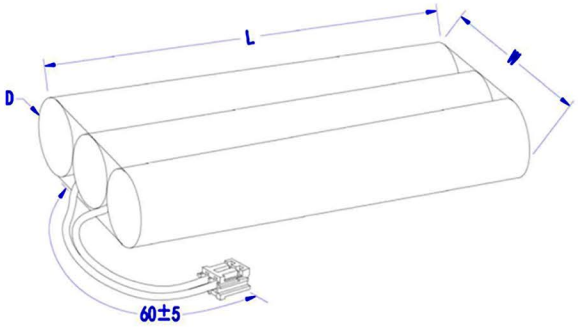
LMDP-(4700 to 4703)-1-DM Driver Module



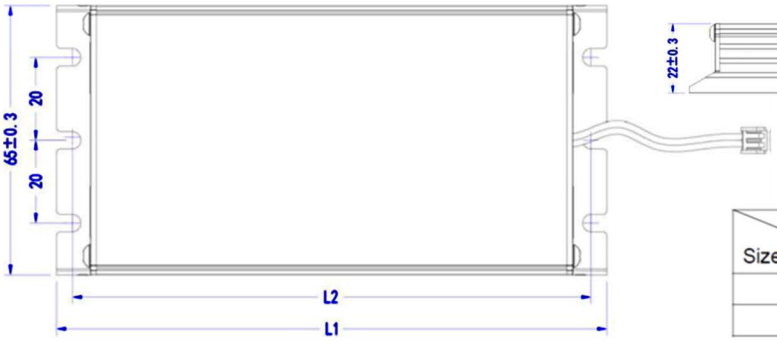
Item No.	L	L1	W	H
184700-1	125	117	65	22
184701-1	125	117	65	22
184702-1	125	117	65	22
184703-1	125	117	82	30

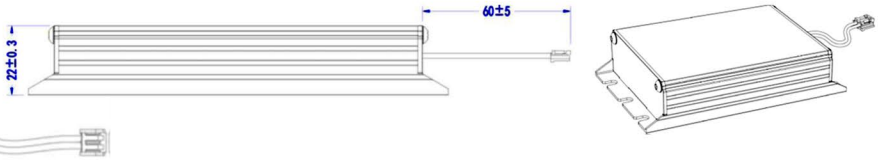
LMDP-(4700 to 4703)-1-BP Battery Pack



Size \ Battery	1500mAh(184700-1)	2100mAh(184701-1)	3800mAh(184702-1)	4500mAh(184703-1)
L	100±2mm	150±1.5mm	213±3mm	196±3mm
W	57±2mm	51±1.5mm	56.4±1mm	76.5±1.5mm
D	ø14(+1,−0)mm	ø17±1mm	ø18.8±0.5mm	Max ø 26

LMDP-(4700 to 4703)-1-BMA Battery Mounting Box A (Optional)

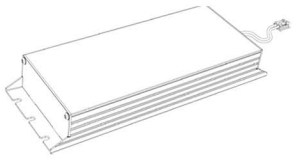




Size \ Battery	1500mAh(184700-1)	2100mAh(184701-1)	3800mAh(184702-1)
L1	128±0.5mm	176±0.5mm	241±0.5mm
L2	120±0.5mm	168±0.5mm	233±0.5mm

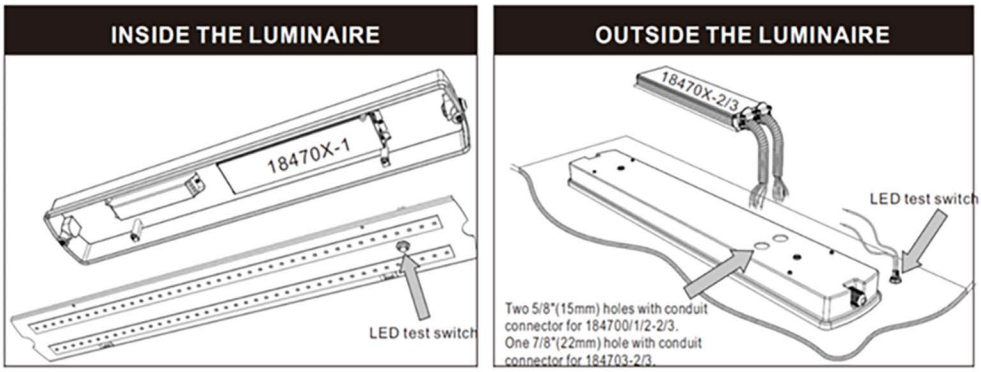
LMDP-(4700 to 4703)-1-BMB Battery Mounting Box B (Optional)

Size \ Battery	4500mAh(184703-1)
L1	232±0.5mm
L2	224±0.5mm



Type	184700	184701	184702	184703
Rated voltage	120-277VAC 50/60Hz			
Rated current	0.05A (Max)	0.06A (Max)	0.07A (Max)	0.1A (Max)
Rated power	3.5W (Max)	4.0W (Max)	5.0W (Max)	7.0W (Max)
Emergency output power between 0℃-50℃	5W	9W	15W	25W
Output voltage	10~60VDC	11~60VDC	15~60VDC	25~60VDC
Output current	1 A (Max)			
Operation frequency	320kHz≥f≥50kHz			
Power Factor	≥0.55			
Battery	Ni-MH			
Charging time	24 Hours			
Discharge time	＞90 Minutes			
Charging current	0.08A	0.11A	0.19A	0.23A
Life time	5 years			
Charging cycles	＞500			
Operation temperature	0~50℃			
Efficiency	80%			
Abnormal protection	Over load, Inrush current limiting, over temperature, open circuit, short-circuit Protection with auto-reset			
Wire	1. 5～2.5mm^2			
EMC& EMF standard	EN 55015, EN 61547, EN 61000-3-2, EN 61000-3-3; EN 62493			
Safety standard	EN 61347-1, EN 61347-2-13, EN 61347-2-7, UL924			

The 184700/1/2/3-1 should be mounted inside the luminaire by the luminaire manufactory.
The 184700/1/2/3-2/3 can be mounted inside or outside (nearby or on top of) the luminaire.



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Compact Normal and Em Driver • Replaces fixture driver

LMDP-4500 (30 Watts)

LMDP-4501 (50 Watts)

LMD4500
LMD4501

Features

1. For normal operation and emergency operation of LEDs, no need extra LED driver
2. Constant current, multi-current selectable output
3. Normal mode LED soft start, emergency mode conversion within 0.3 seconds
4. 1-10V dimmable
5. Emergency mode can choose 25%, 50%, 75%, 100% output of normal mode
6. Auto Test
7. Slim aluminium housing
8. Class I
9. CE & UL approved
10. Conform to RoHS

	1	2	3	Current
I	○	○	○	150mA
II	●	○	○	250mA
III	○	●	○	300mA
IV	○	○	●	350mA
V	●	●	○	400mA
VI	●	○	●	450mA
VII	○	●	●	500mA
VIII	●	●	●	600mA

LMD4500

	1	2	3	Current
I	○	○	○	600mA
II	●	○	○	700mA
III	○	●	○	750mA
IV	○	○	●	800mA
V	●	●	○	850mA
VI	●	○	●	900mA
VII	○	●	●	950mA
VIII	●	●	●	1000mA

LMD4501

The current can be configured by choosing the correct combination of the DIP switches

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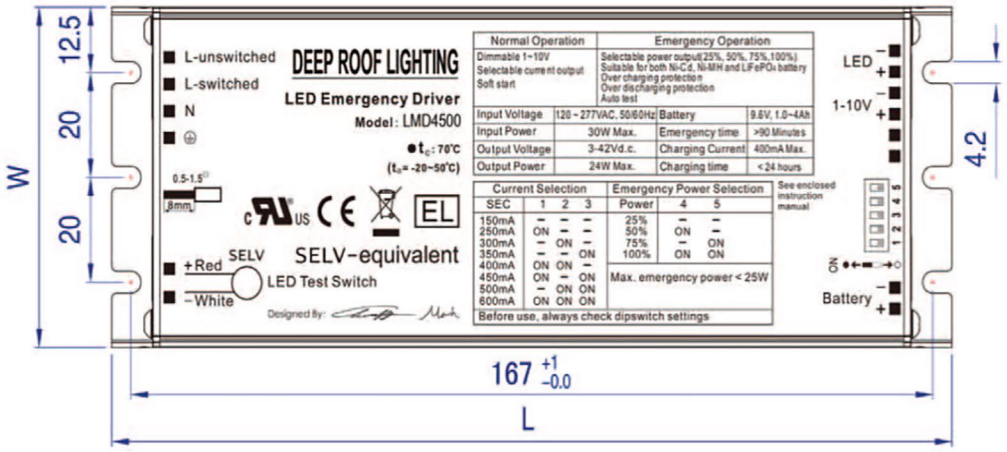
Characteristics

Specification	LMD4500	LMD4501
Rated voltage	120-277VAC 50/60Hz	120-277VAC 50/60Hz
Rated current	0.3A (Max)	0.5A (Max)
Rated power	30W (Max)	50W (Max)
Emergency output power	≤25.2W (Max)	≤25.2W (Max)
Output voltage	3～42VDC	3～42VDC
Operation frequency	320kHz≥f≥50kHz	320kHz≥f≥50kHz
Power Factor	≥0.9	≥0.9
Battery	1.0-4Ah, 9.6V Ni-Cd/Ni-MH/$LiFePO_4$	1.0-4Ah, 9.6V Ni-Cd/Ni-MH/$LiFePO_4$
Charging time	24 Hours	24 Hours
Discharge time	＞90 Minutes	＞90 Minutes
Charging current	0.40A (Max)	0.40A (Max)
Life time	5 years	5 years
Charging cycles	＞500	＞500
Operation temperature	Ta: -20~50℃ Tc: 70℃	Ta: -20~50℃ Tc: 70℃
Output current	150mA, 250mA, 300mA, 350mA, 400mA, 450mA, 500mA, 600mA ±3%	600mA, 700mA, 750mA, 800mA, 850mA, 900mA, 950mA, 1000mA ±3%
Efficiency	80%	80%
Abnormal protection	Over load, Inrush current limiting, over temperature, open circuit, short-circuit Protection with auto-reset	Over load, Inrush current limiting, over temperature, open circuit, short-circuit Protection with auto-reset
Wire	1. 5～2.5mm^2	1. 5～2.5mm^2
EMC& EMF standard	EN 55015, EN 61547, EN61000-3-2, EN61000-3-3; EN62493	EN 55015, EN 61547, EN61000-3-2, EN61000-3-3; EN62493
Safety standard	EN 61347-1, EN 61347-2-13 ,EN61347-2-7, UL924, UL8750	EN 61347-1, EN 61347-2-13 ,EN61347-2-7, UL924, UL8750

Dimension

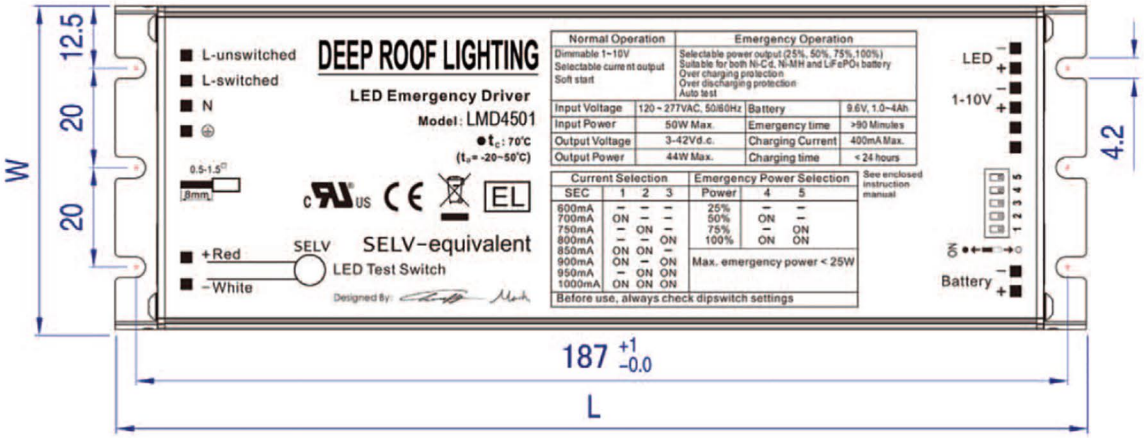
LMD4500

Notes:
1. Dimension unit: mm
2. Dimension tolerance: ±0.2mm



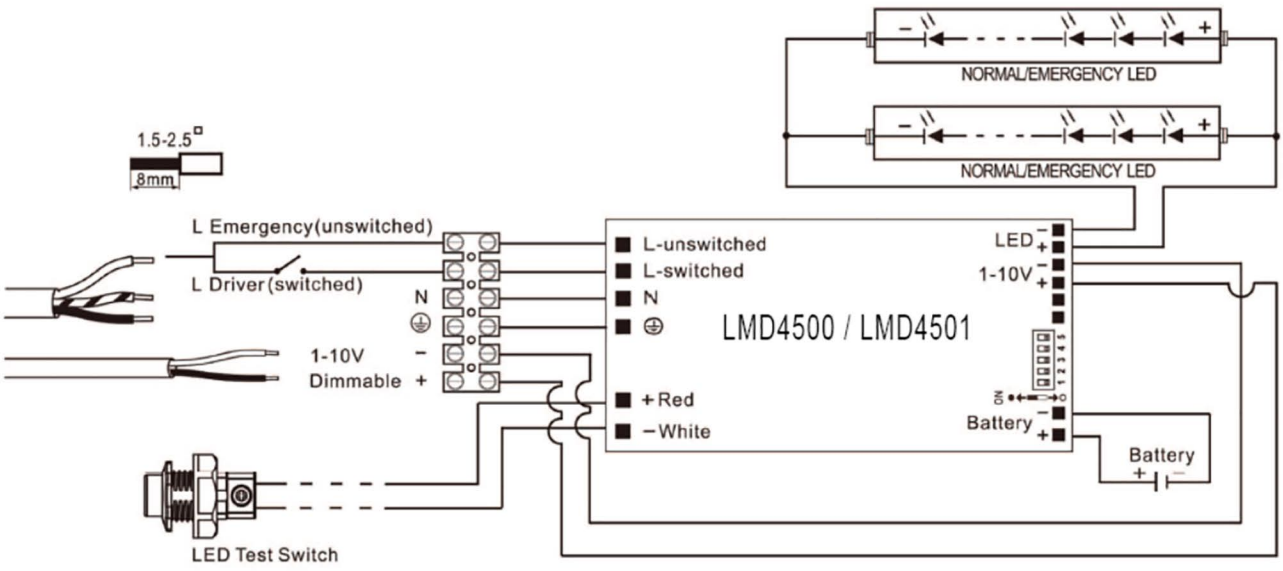
Item No.	L	W	H
LMD4500	175	65	22

LMD4501



Item No.	L	W	H
LMD4501	195	65	22

Connection Diagram



Battery Selection

Emergency time >90 Minutes

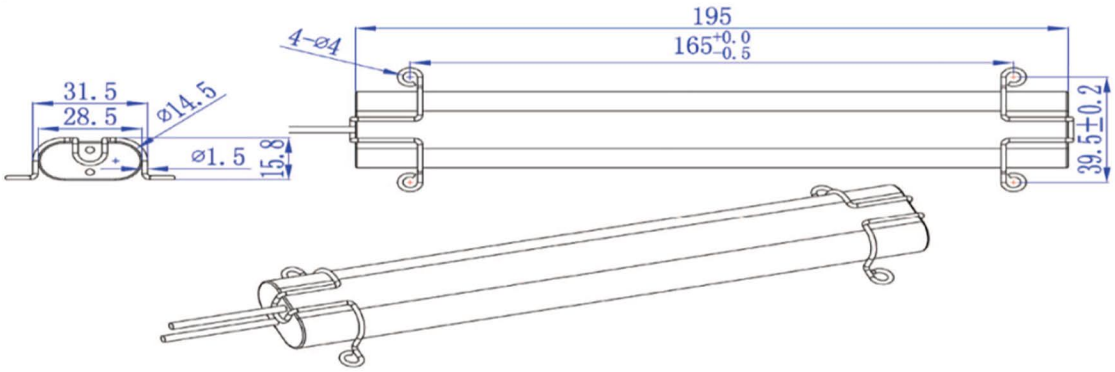
Output voltage 42VDC

Battery for LMD4500				
Current(mA)	Emergency power rate			
	25%	50%	75%	100%
	9.6V battery(Ah)	9.6V battery(Ah)	9.6V battery(Ah)	9.6V battery(Ah)
150	1.00 (Ni-Cd AA)	1.00 (Ni-Cd AA)	1.00 (Ni-Cd AA)	1.00 (Ni-Cd AA)
250	1.00 (Ni-Cd AA)	1.00 (Ni-Cd AA)	1.50 (Ni-Cd SC)	2.00 (Ni-Cd SC)
300	1.00 (Ni-Cd AA)	1.00 (Ni-Cd AA)	1.50 (Ni-Cd SC)	2.00 (Ni-Cd SC)
350	1.00 (Ni-Cd AA)	1.50 (Ni-Cd SC)	2.00 (Ni-Cd SC)	3.00 ($LiFePO_4$)
400	1.00 (Ni-Cd AA)	1.50 (Ni-Cd SC)	2.00 (Ni-Cd SC)	3.00 ($LiFePO_4$)
450	1.00 (Ni-Cd AA)	1.50 (Ni-Cd SC)	3.00 ($LiFePO_4$)	3.00 ($LiFePO_4$)
500	1.00 (Ni-Cd AA)	2.00 (Ni-Cd SC)	3.00 ($LiFePO_4$)	4.00 (Ni-Cd D)
600	1.00 (Ni-Cd AA)	2.00 (Ni-Cd SC)	3.00 ($LiFePO_4$)	4.00 (Ni-Cd D)

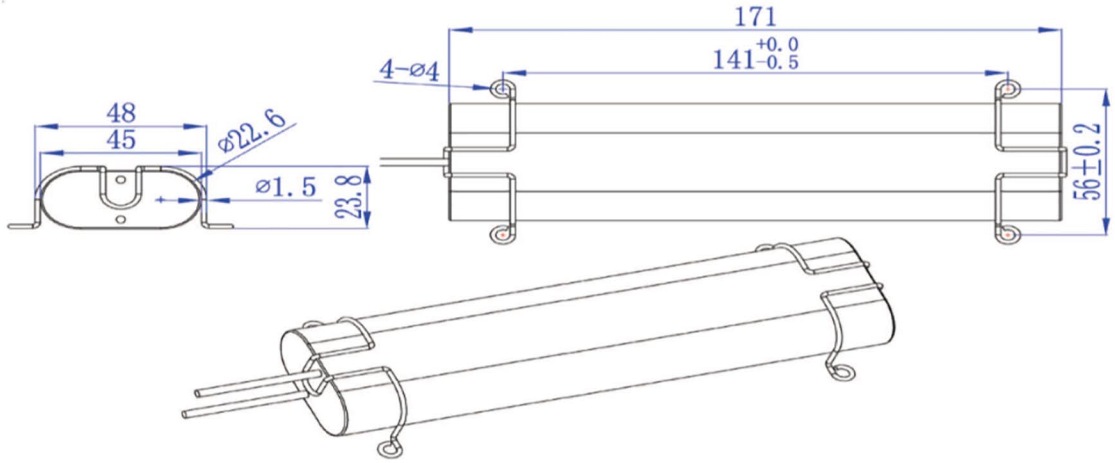
Battery for LMD4501				
Current(mA)	Emergency power rate			
	25%	50%	75%	100%
	9.6V battery(Ah)	9.6V battery(Ah)	9.6V battery(Ah)	9.6V battery(Ah)
600	1.00 (Ni-Cd AA)	2.00 (Ni-Cd SC)	3.00 ($LiFePO_4$)	4.00 (Ni-Cd D)
700	1.50 (Ni-Cd SC)	3.00 ($LiFePO_4$)	4.00 (Ni-Cd D)	4.00 (Ni-Cd D)
750	1.50 (Ni-Cd SC)	3.00 ($LiFePO_4$)	4.00 (Ni-Cd D)	4.00 (Ni-Cd D)
800	1.50 (Ni-Cd SC)	3.00 ($LiFePO_4$)	4.00 (Ni-Cd D)	4.00 (Ni-Cd D)
850	1.50 (Ni-Cd SC)	3.00 ($LiFePO_4$)	4.00 (Ni-Cd D)	4.00 (Ni-Cd D)
900	1.50 (Ni-Cd SC)	3.00 ($LiFePO_4$)	4.00 (Ni-Cd D)	4.00 (Ni-Cd D)
950	2.00 (Ni-Cd SC)	4.00 (Ni-Cd D)	4.00 (Ni-Cd D)	4.00 (Ni-Cd D)
1000	2.00 (Ni-Cd SC)	4.00 (Ni-Cd D)	4.00 (Ni-Cd D)	4.00 (Ni-Cd D)
			Emergency current output = 600mA	

NOTE: Max. emergency output power <25.2W

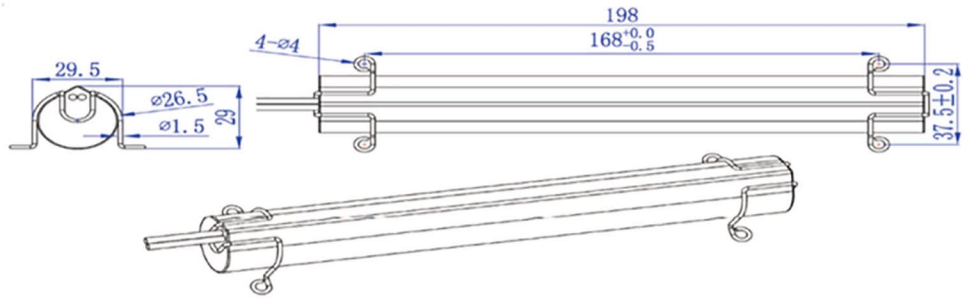
Battery Ni-Cd AA 9.6V



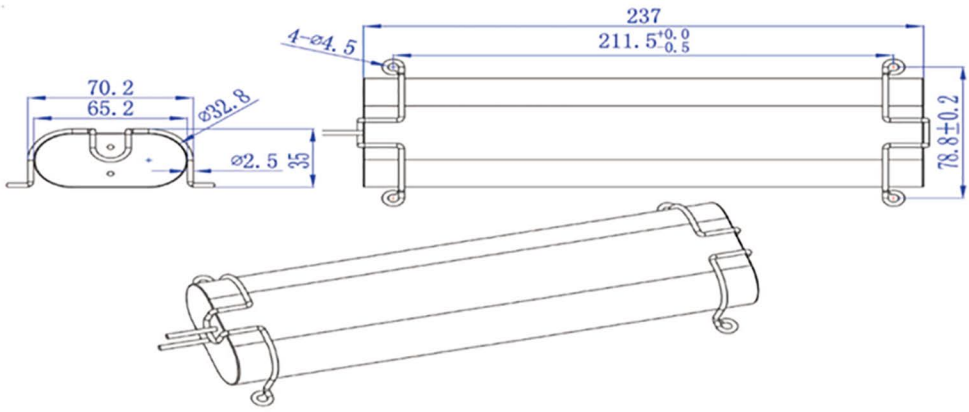
Battery Ni-Cd SC 9.6V



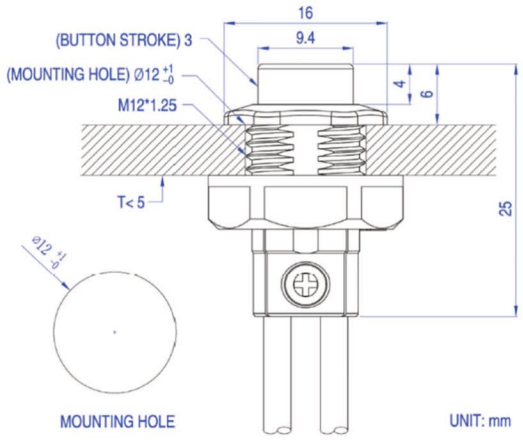
Battery LiFePO4 9.6V



Battery Ni-Cd D



LED Test Switch Dimension



Auto Test

1. Instant Auto Test

When the system is connected well and powered on, the module will Auto Test if the load and battery pack are connected well and if the battery is being charged normally. If there is any abnormal situation, the LED Signal Lamp (LSL) is flickering. When the abnormity is removed, the LSL indicates normally.

2. Preprogrammed scheduled Auto Test

- Carry out first monthly Auto Test after Initial power on for 24 hours to 7 days, afterwards, carry out a monthly Auto Test every 30 days.

- Carry out an annual Auto Test every 52 weeks after first powered on.

- Auto Test timing

To reduce the conflict that Auto Test is executed when the lighting is in use, the preprogrammed scheduled Auto Test will be executed 2 hours later than the normal operation is disconnected (switched off). For applications where lightings remain illuminated, the module will postpone the scheduled test accordingly, but should not later than the preprogrammed scheduled latest test time.

- Monthly Auto Test

Monthly Auto Test should be executed every 30 days and to test:
If the switchover of normal and emergency mode is normal;
If the emergency function and battery's charging and discharging condition is normal;
Auto Test time is about 30 seconds.

- Annual Auto Test

Annual Auto Test should be executed after 24 hours full charging and to test:
If the battery's voltage is equal or higher than the limit after 24 hours full charging;
If the emergency operation time is over 90 minutes;
If the battery voltage after 90 minutes emergency operation is still equal or high than 87.5% of the battery voltage before testing.

- During the Auto Test, in case a power failure happens and the power cannot be on till the Auto Test completes, then the Auto Test will be executed again 24 hours later after the power is on.
- If the emergency mode makes the battery discharged completely under the power off condition, then the preprogrammed scheduled Auto Test will resume the first time when the power is connected.

3. Manual Test

- Press LED test switch (LTS) one time, then go into emergency mode.
- Press LTS 2 times continuously within 5 seconds, then go into monthly test. After finish, the next monthly test will count from this date.
- Press LTS 3 times continuously within 5 seconds, then go into annual test, after finish, the next annual test will count from this date.
- During the manual test, press LTS 3 times, then the manual test can be terminated. (The preprogrammed scheduled Auto Test time will not change)

4. LED Signal Lamp (LSL) indication

- LSL on: Normal
- LSL off: Power failure
- LSL gradual change: In testing
- LSL flickering: Abnormal

Emergency Battery Back Pack Fluorescent, UL

Item Codes

FMDP-4010-1 : Ni-Cd Battery 1.8 AH, 4.8 VDC

FMDP-4010-4 : Ni-Cd Battery 4

UL UNIVERSAL EMERGENCY MODULE

FMD-4010

***** For most T8, T5 and CFL, 1 or 2 lamps**

***** Using various battery packs**

Application

1.For emergency operation of Fluorescent lamps. For normal operation must be with a separate AC ballast. See instruction manual for further details.

2.Start up time of normal operation is max. 5 seconds, also at low battery level. Start up time of emergency operation is max. 0.5 seconds.

3.A LED signal lamp is lit when the module is in normal operation and is switched off when the lamp is in emergency operation.

4.At normal surrounding temperature (from 0°C to 40°C), the charging time of the battery pack from 0% to 100% is max. 24 hours. The discharging time is min. 90 minutes.

5.Emergency operate one lamp minimum 90 minutes at reduced light output.

6.Battery pack is separate from the emergency module.

7.Installation according to the instruction manual.

Emergency Battery Back Pack Fluorescent, UL

Item Codes

FMDP-4010-1 : Ni-Cd Battery 1.8 AH, 4.8 VDC

FMDP-4010-4 : Ni-Cd Battery 4

UL UNIVERSAL EMERGENCY MODULE

FMD-4010

***** For most T8, T5 and CFL, 1 or 2 lamps**

***** Using various battery packs**

Application

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5.Emergency operate one lamp minimum 90 minutes at reduced light output.

6.Battery pack is separate from the emergency module.

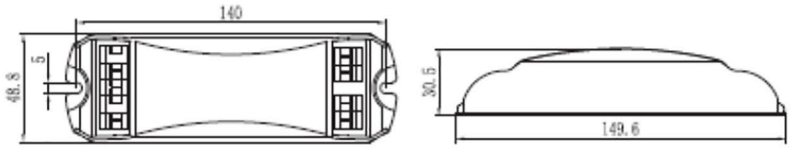
7.Installation according to the instruction manual.

Technical Data

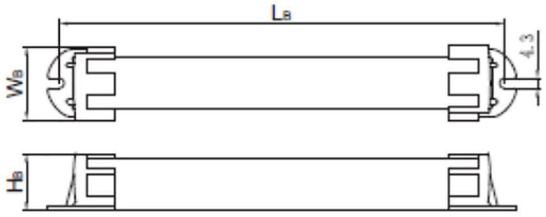
Mains supply	120V to 277V, 50/60Hz
Tolerance of mains supply	100-300V
Input wattage	3.5W
Input current	0.05A
Max. charging current	110mA
Battery rating	1.8-4.0Ah, 4.8V (1.2V x 4PCS) HT Nicd battery type
Lamps operated	Most T5, T8, circular, compact fluorescent lamps
Emergency operation (if 18W lamp installed)	>90 minutes
Charging cycles	>500
Life time for battery pack	5 years
Operation time for module	30,000 hours
Switching cycles for module	>20,000 times
Life time of module	5 years
Compliant standards	EN55015; EN61000-3-2; EN61000-3-3; EN61547; EN61347-2-7; EN61347-1. UL924
Approval	CE/EMC and CE/LVD approval by TUV Rheinland; cUL and UL Recognized

Unit: mm

Emergency ballast

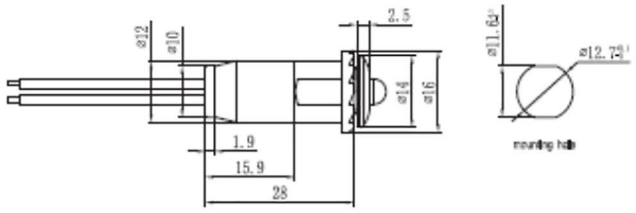


Battery pack

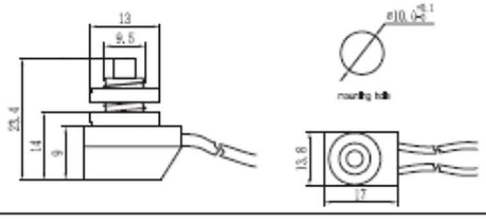


Battery	LB	WB	HB
1.8Ah	192	31.8	24.7
4Ah	260	36.5	36

Test switch



LED signal lamp



Deep Roof Lighting Inc. 55 Sea Cliff Avenue, Glen Cove, NY 11542 / ph (516) 676-9100 fx (516) 676-9109

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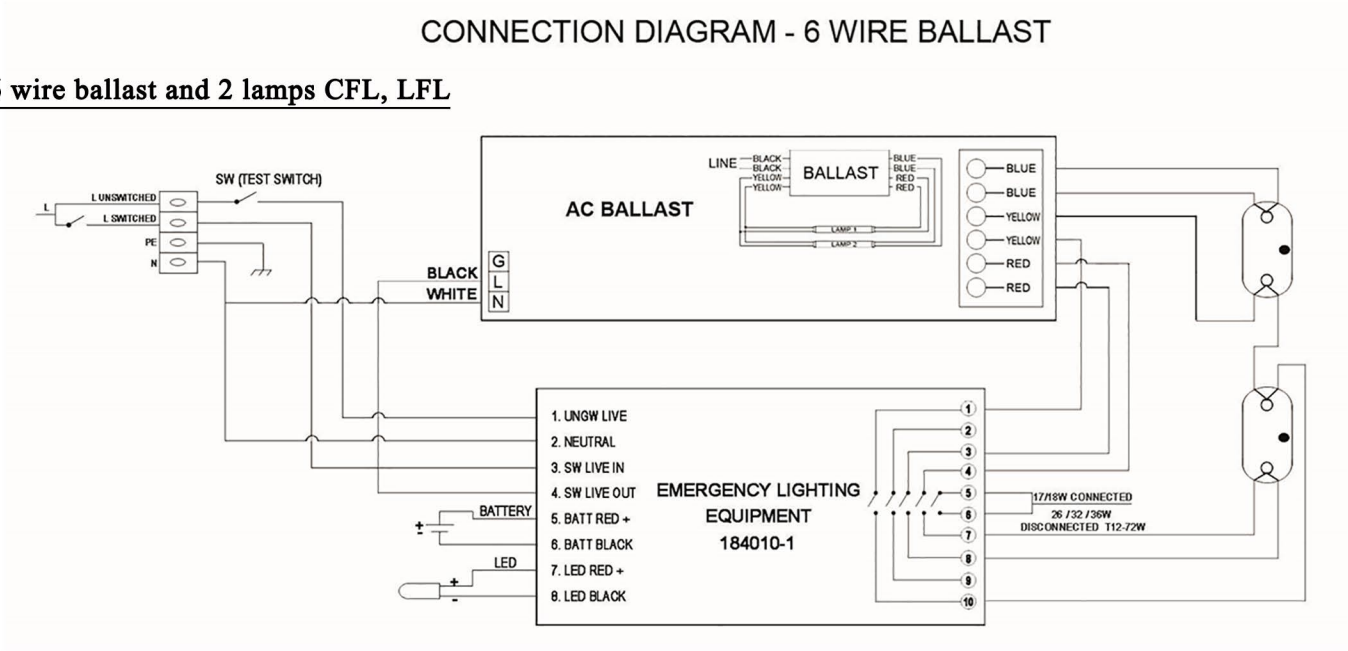
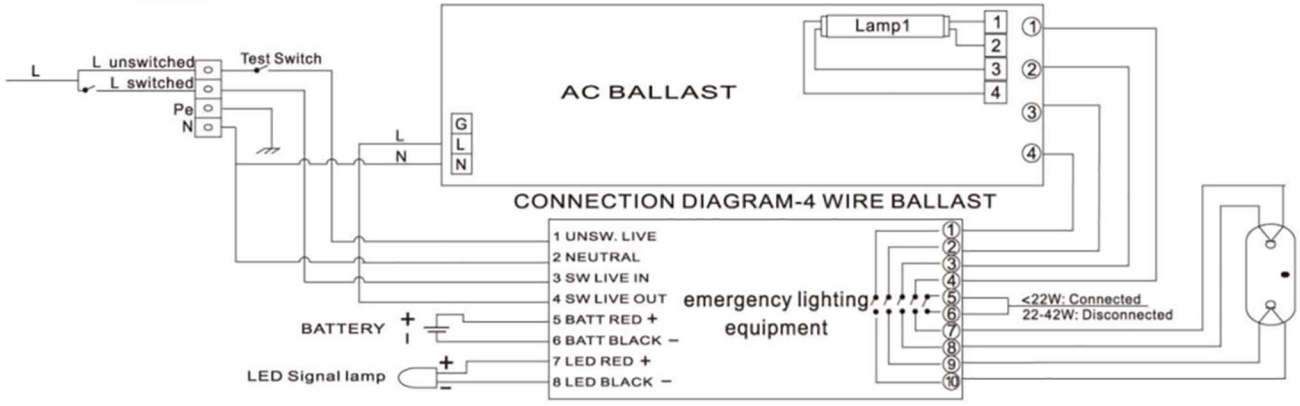
Wiring Diagrams

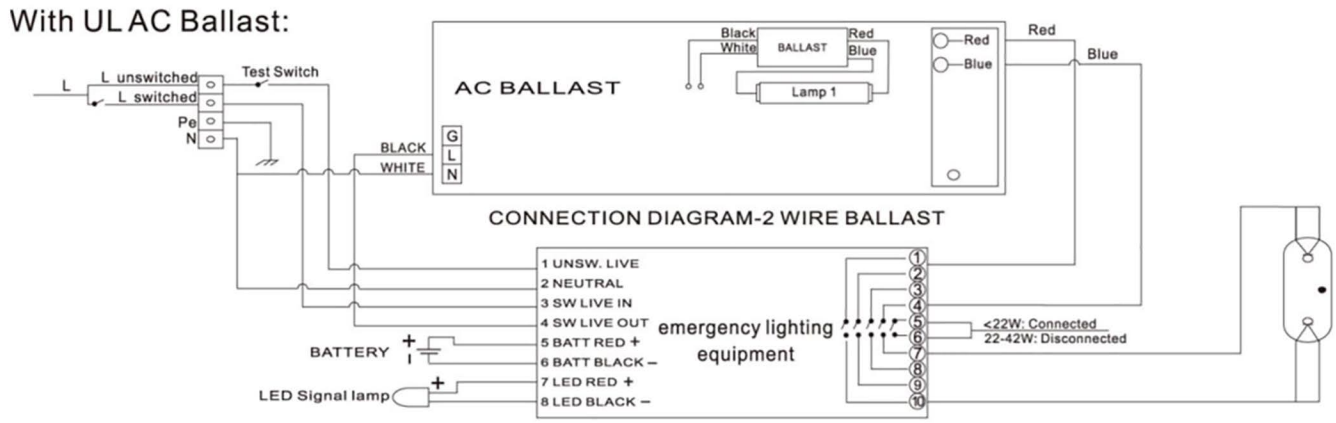
For 6 wire ballast and 2 lamps CFL, LFL



For 4 wire ballast and 1 lamps CFL, LFL



For 2 wire ballast and 1 lamps CFL, LFL



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