

# EMERGENCY INVERTER

WP-CEP-12C-200VPE1



## General Description

WP-CEP-12C-200VPE1 LED Emergency Battery Backup LED Drivers, using compact metal case, with external installation, is connected between AC source and LED luminaires, without any change to the original structure. With built-in LiFePO4 battery, constant Emergency output power 12W, High PF up to 0.99 while charging, it is adapt to 100-277Vac grid and 0-50°C working environment.



## Features

- Wide input voltage 100-277Vac
- Compatible with all kinds of LED drivers which input range between AC100-277V.
- Multiple Protection: Short-Circuit Protection, Over-Load Protection, Open-Circuit Protection, Over-Charge Protection, Over-Discharge Protection, Self-Diagnostic.
- Emergency durable time:  $\geq 90$ mins
- Ultra-thick and not-easy-deformable metal shell, complaintto the requirements of drop test.
- Surge: L-N 3KV,L&N-PE 3KV
- Ring wave: L-N 2.5KV,L&N-PE 2.5KV
- Compliantto FCC 47 CFR Part 15 (Class B)
- Compliantto NFPA 101 safety regulation's requirements on Emergency power supply
- UL/cUL 924 Listed certificate
- High PF up 0.99 which charging
- Constant output power
- Low THD
- 5 Years warranty <sup>①</sup>

## Application Scenarios

- When LED Luminaries is higher than 12W, WP-CEP-12C-200VPE1 can control it at 12W under emergency mode through the internal dimming control signal. And in theory, it can support maximum 100W LED Luminaries which have dimming function.
- When LED Luminaries is less than 12W, WP-CEP-12C-200VPE1 can light up it normally as a power source. And in theory, it can support LED Luminaries( $\leq 12$ W) with or without dimming function.

<sup>①</sup> Batteries are not subject to this warranty.

## Electrical Parameters

Model#	Output Voltage	Rated Output Power	Battery Capacity	Emergency Time
WP-CEP-12C-200VPE1	120-200Vdc	12W	38.4Wh	90 minutes

## Input Characteristics

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Rated Input Voltage	Uin	Vac	--	120/277	--	
Input Voltage Range		Vac	90	--	305	
Input Frequency	F	Hz	47	50/60	63	
Input Current	Iin	A	--	--	0.12	120Vac, while charging
Input Power	Pin	W	--	--	9.5	120Vac, while charging
Input Surge Current		A	--	--	30	220Vac/50Hz @25°C
Standby Power Consumption		W	--	--	0.8	277Vac/60Hz, after full charge
Power Factor	PF		0.9	--	--	Vin=120Vac/60Hz (while charging)
THDI	THDi	%	--	15%	20%	Vin=120-277Vac/60Hz,(while charging)

## Output Characteristics

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
No-Load Output Voltage	Uo	Vdc	--	--	250	
Output Voltage		Vdc	120	--	200	It varies with the battery voltage, which is only an approximation
Emergency Output Power	Po	W	--	12	--	The maximum output power is limited to 12W
Emergency Conversion Time		S	--	--	5	Response time from mains power outage to emergency output
			--	--	2	Response time from emergency mode to charging mode
Emergency Duration Time		min	90	--	--	Emergency output voltage 12W
Max. Load Power		W	--	--	100	The maximum input power of the matched LED driver, and meanwhile, the minimum input power after dimming (before turning off) shall be less than 10W (black white line).

## Battery Information

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Battery Type			LiFePO4			
Battery Capacity			3000mAh/12.8V 38.4Wh			26650 4S1P
Charging Time		hours	--	--	24	
Maximum Charging Interval		month	--	--	12	

## Protection Characteristics

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Short Circuit Protection	SCP	W	--	--	--	Deadlock, restart to recover
Open Circuit Protection	OVP	V	--	--	250	Deadlock after 3hours, restart to recover
Over Load Protection	OLP	W	--	--	15W	Deadlock after 10s, restart to recover

## Environment Characteristics

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Ambient Temperature <sup>②</sup>	Ta	°C	-10	--	50	
Work Humidity		RH	10%	--	90%	
Storage Temperature		°C	-20	--	65	
Storage Humidity		RH	5%	--	95%	
Altitude		m	-50	--	3000	
Cooling Mode			Air natural cooling			

## Other Characteristics

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Mean Time Between Failures	MTBF	hours	200000			277Vac, Ta25°C (MIL-HDBK-217F)
Weight	N.W	g	--	1165	--	

② It can work in the range of -10-50°C, but the discharge time of 90 minutes is not guaranteed when it is lower than 0°C.

## Safety Regulation

Certificate	Safety Standards	State	Remarks
UL	UL924	✓	
CUL	CAN/CSA-C22.2 NO. 141	✓	
BC	CEC Title 20	✓	

## Electromagnetic Compatibility

EMI/EMS Items	Standards	Judgements Basis
Conduction CE	FCC part 15	Class B
Radiation RE	FCC part 15	Class B
Harmonic Wave	IEC/EN 61000-3-2	Class C
Surge	IEC 61000-4-5	L-N :3KV, L&N-PE:3KV
Ring Wave	ANSI C62.41	L-N :2.5KV, L&N-PE:2.5KV

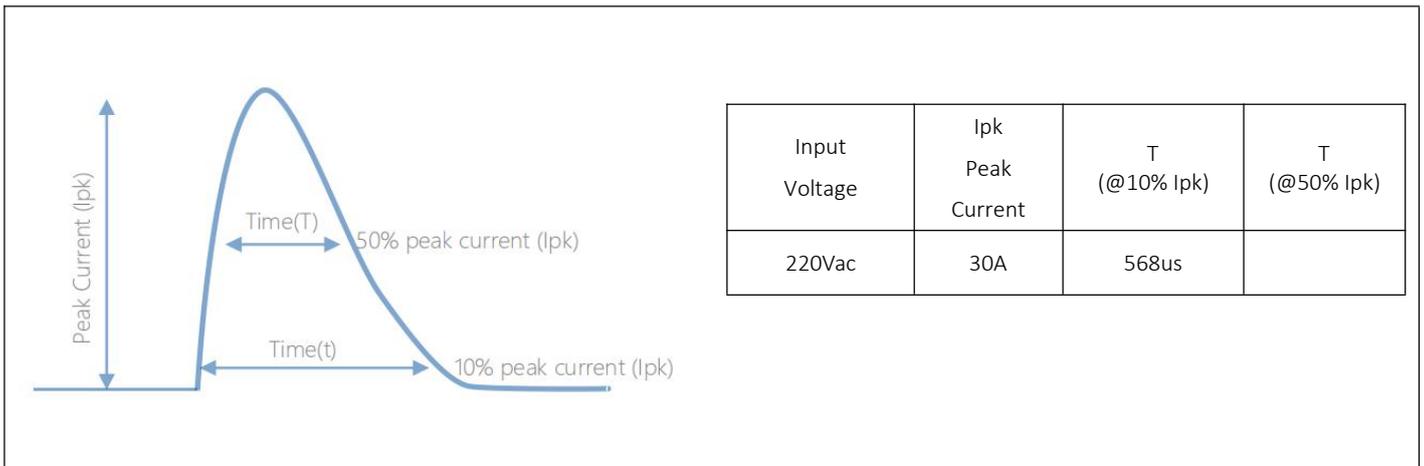
## Safety Test Projects

Safety Test	Safety Test	Safety Test
Input-Ground	1800Vac/5mA/60S	No breakdown, no arc
Output-Ground	1800Vac/5mA/60S	No breakdown, no arc
Insulation Resistance	≥100Mohm	Input-Ground, test voltage 500Vdc
Leakage Current	≤0.75mA	277Vac
Ground Resistance	≤0.1Ω	25A/1min

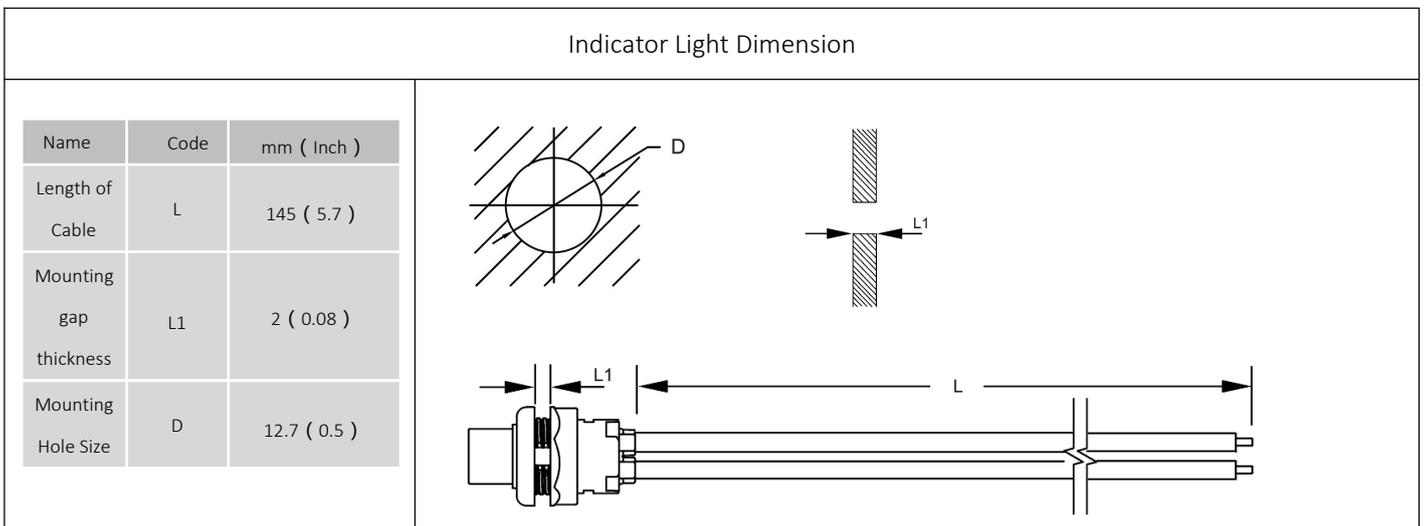
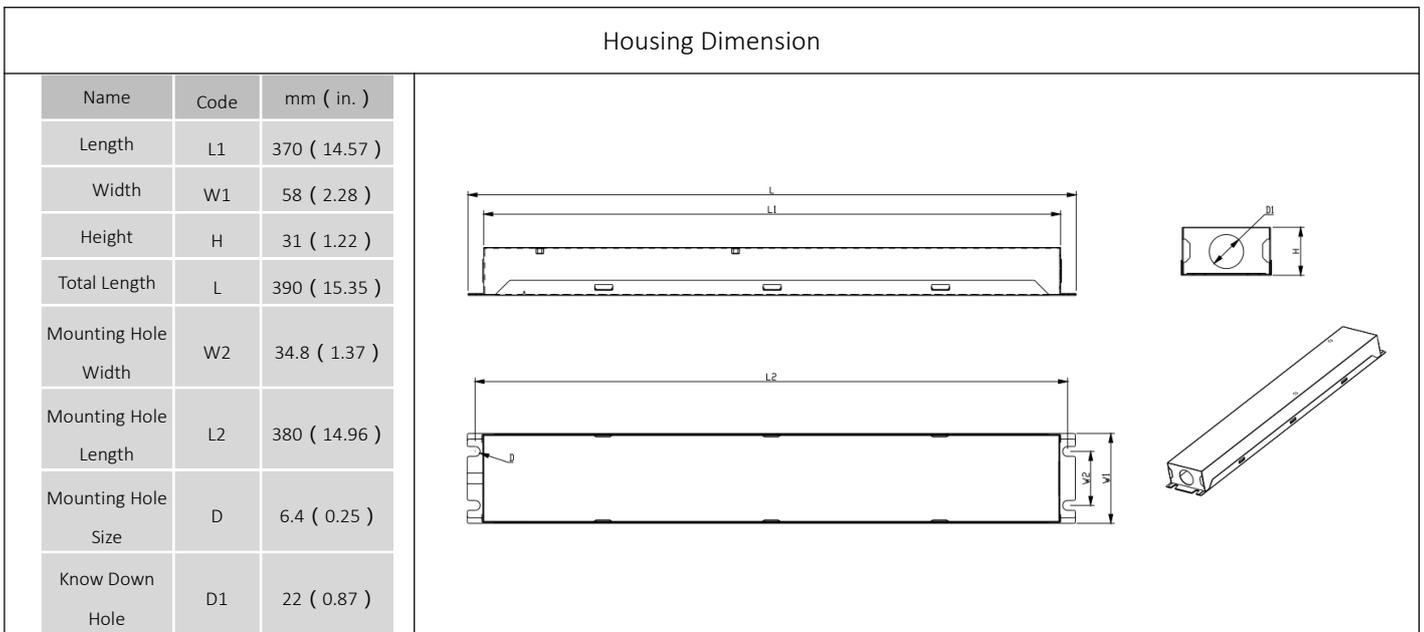
Note:

1. The LED driver is regarded as a component used in combination with the terminal equipment. Because the EMC is affected by the entire device, the terminal equipment manufacturer needs to perform EMC verification on the entire device.
2. When doing withstand voltage test, please short circuit between L and N, short circuit between positive and negative output wires, and short circuit between positive and negative dimming wires.
3. Unless otherwise specified, all the above parameters shall be measured under the condition of full load and 25°C.

## Characteristic Curve

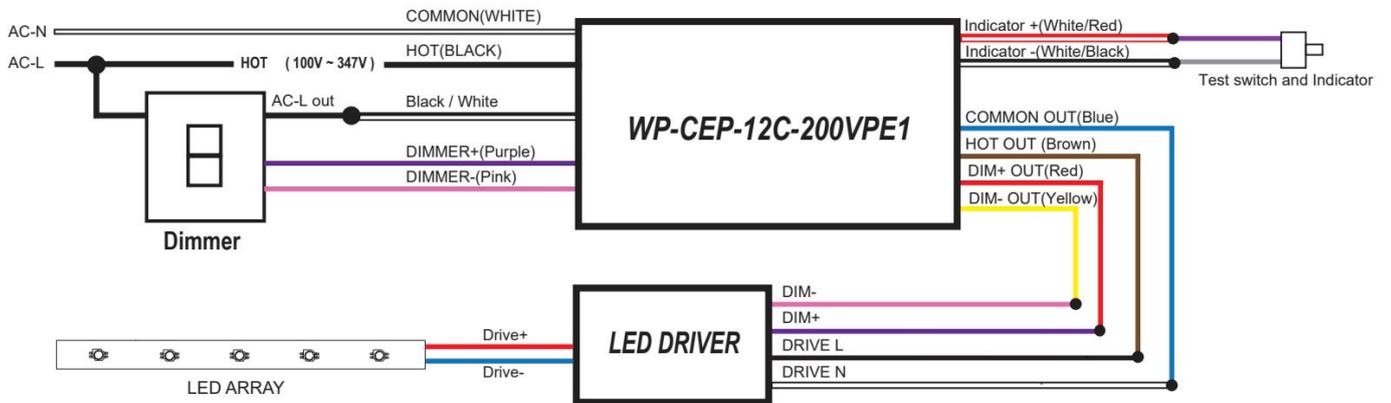


## Structure

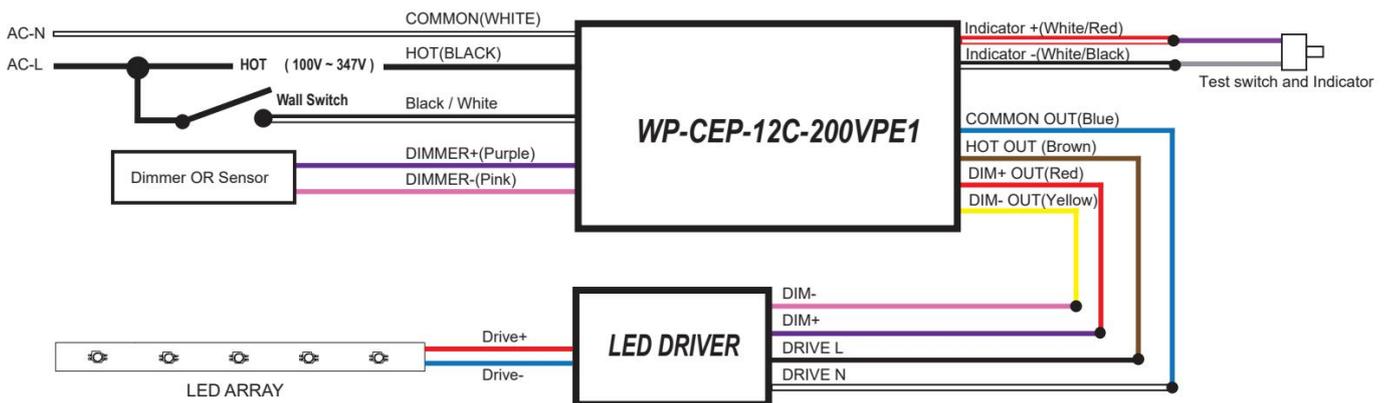


## Wiring Diagram

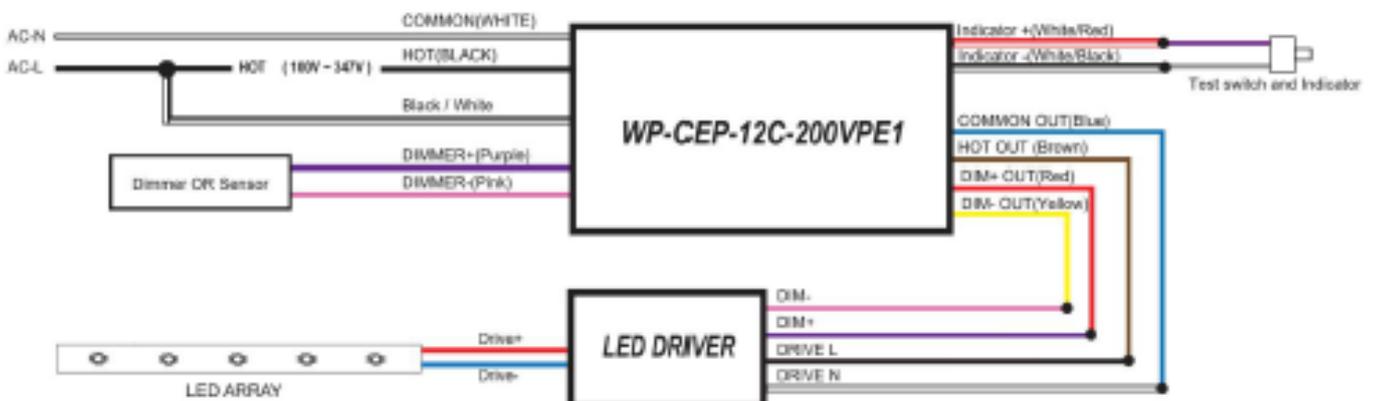
### (A): Dimmer Switch



### (B): Ordinary Switch

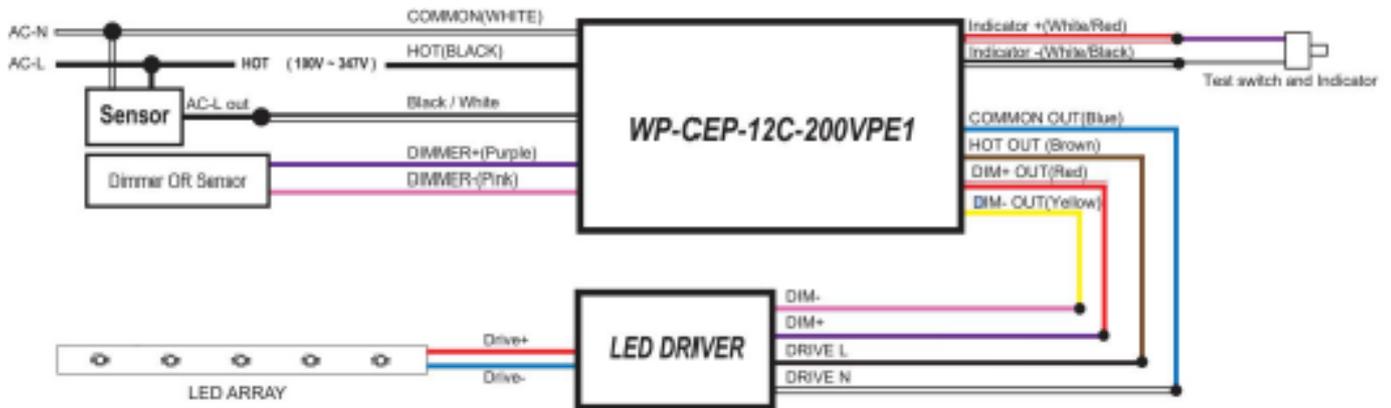


### (C): No Switch



## Wiring Diagram

### (D): Sensor Control



## Installation Guideline

- Step #1 Disconnect AC Power From Fixture
- Step #2 Install the emergency backup
- ① Fix the emergency backup on the fixture or T-BAR BRACKET
  - ② Connect all wires correctly according to the wiring diagram
  - ③ Cover the junction box, finish the installation
- Step #3 After complete installation, power it on. After 1 hour charging, make a short time diagnostic test; after 24 hours charging, make a complete discharge diagnostic test.

## Indicator

Indicator Status	Emergency Working Status
Solid Green ON	System OK/AC OK
Indicator OFF	System abnormal, battery voltage too low, or LED Luminaire short circuit
Green Light Flashing (1s on, 1s off, cycling)	Battery not detected, check battery connection
Green Light Flashing (0.1s on, 5s off, cycling)	Under Emergency Working Mode
Green Light Slow Flashing (5s on, 5s off, cycling)	Discharge time is less than 90 minutes (Self-diagnostic test), LED Luminaire is Open Circuit or Over Load
Green Light Flashing (1s on, 1s off, 5 times)	Disable the Self-diagnostic Test System
Green Light Flashing (1s on, 1s off, 3 times)	Enable the Self-diagnostic Test System

## Diagnostic System Test Method

### Manual Diagnostic Mode

Under Normal Charging Mode, after the battery charged for 12 hours or fully charged, long press the test button for 3S and hold it, to enter the Manual Test Mode (the controller will switch to Emergency Mode) , release the button to exit the Manual Diagnostic Mode.

### Enable / Disable Self-Diagnostic Test System

Under Normal Charging Mode, press the button twice in two seconds, then press the button longer than 2S and less than 5S, then press the button twice in succession, the indicator light will be on and off for 5 times (1S interval), means disable the Self-Diagnostic Test System successfully. If you want to enable the Self-Diagnostic Test System, repeat the operation above, the indicator light will be on and off for 3 times (1S interval), means “Enable”.

### Enter Sleep Mode

Under Emergency mode, press the test button 3S, to enter Sleep Mode(Storage and transportation),and activate it by connecting to AC power.

### Reset

Under abnormal status, press and hold the test button >5s, power off, and re-connect to mains supply, to reset the System.



## Self-diagnostic System

### Monthly Self-diagnostic

In the normal charging mode, the system performs a monthly self-diagnostic test every 30 days, the system switches to Emergency Mode for 30S, and automatically switches back to the normal Charging Mode after 30S.

### Yearly Self-Diagnostic

In the normal Charging Mode, the system switches to the Emergency Mode every 360 days (after 11 Monthly Self-diagnostic Test) and works until the end of discharge. It will automatically switches back to normal Charging Mode after full discharge.

## Light Output Calculation

To ensure sufficient light output in the end application, please estimate by doing the following:

- Check the light efficacy(lm/w) of LED luminaire, which is provided by the luminaire manufacturer or test it directly, or check the test data from 3rd party test laboratory like UL, ETL etc., or visit 3rd party public database(such as Design Lights Consortium, [www.designlights.org](http://www.designlights.org) etc.). or other comparable means.
- Lumens can be calculated by multiplying the output power of WP-CEP-12C-200VPE1 by the light efficacy of the LED luminaire. In many cases, the actual lumen output in emergency mode will be greater than this calculation gives, however, it will provide a good reference for the lighting design.
- Using the results of this calculation and industry standard lighting design tools, the expected illuminance in the curve can be calculated.

$$\text{Lumens In Emergency Mode} = \text{Lumens per Watt of Fixture} * \text{Output Power of Chosen Product}$$

$$\underline{\hspace{2cm}} \text{ (Lumens)} = \underline{\hspace{2cm}} \text{ (lm/W)} * 50 \text{ (W)}$$

## Accessories

#	Description	Quantity	Remarks
1	WP-CEP-12C-200VPE1	1	
2	CM-221-2P Terminals 2P	8	
3	CM-221-3P Terminals 3P	2	
4	User Manual Book	1	

## Packaging

- Net Weight: 1165g
- Quantity/Carton: 6pcs
- Carton Size: LxWxH = 15.34x2.25x1.16 Inch
- Carton New Weight/ Gross Weight: 7KG/KG



## Cautions:

- If the product packaging is damaged, please confirm whether the product appearance is complete. Any cracks on the external structure of the product is not allowed.
- When the dimming wires not in use, it is recommended to seal with an insulating sleeve to avoid damage to the dimming circuit due to interference signals and affect the normal operation of the driver.
- Because it is connected to AC input terminal of the driver, and the input surge current of each driver is different, so it can't be guaranteed to be compatible with all the drivers on the market. Please test its compatibility before use, or consult with our engineers.

## Transportation

- It is suitable for transportation by car, boat and airplane, During transportation, it should be sheltered, sun-proof, and civilized loading and unloading.

## Storage

- Product storage should comply with GB 3873-83.
- During long period storage, it is recommended to charge the battery every six months to avoid damage caused by power leakage.

## RoHS

- Products comply to the European Standard 2011//65/EC

# IMPORTANT SAFE GUARDS

**When using electrical equipment and this lighting device basic safety precaution should be followed at all times including but not limited to the following:**

**PLEASE READ CAREFULLY AND FOLLOW ALL INSTRUCTIONS FOR YOUR OWN SAFETY**

**WARNING:** AC power must be off before proceeding with assembly or installation of emergency driver.

**IMPORTANT:** An un-switched AC power source of 100Vac to 277Vac is required.

**CAUTION:** Make sure all electrical connections conform to the National Electrical Code and all applicable local regulations.

**CAUTION:** Do not let power supply cords touch hot surfaces.

**CAUTION:** Do not mount near gas or electric heaters.

**CAUTION:** Use with grounded, UL Listed, dry or damp or wet location rated fixtures.

**CAUTION:** The equipment is intended for ordinary location and for permanent installation into one or more Listed emergency luminaires.

**CAUTION:** Battery is rechargeable LiFePO4 type and must be recycled or disposed of properly. Do not use this emergency driver with accessory equipment other than recommended by manufacturer; failure to follow this may cause an unsafe condition. Servicing should only be performed by qualified service personnel. Do not use this emergency driver for other than intended use. Not suitable for high-risk task area lighting. Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.

**IMPORTANT:** Indicator (LED light) illuminated indicates battery in charge mode when AC power is applied. It is recommended and required by applicable code to test emergency ballast to ensure proper function of the system; push the test switch every thirty (30) days to ensure the emergency driver is functioning by illuminating the light source. Conduct a ninety (90) minutes discharge test one (1) time per year; LED light source should be illuminated for a minimum of ninety (90) minutes .

**TESTING SYSTEM:** The emergency battery requires a charge minimum of one (1) hour before testing the circuit. A full charge requires twenty four (24hours)

## SAVE THESE INSTRUCTIONS