EMAI-EK05 Series

Constant Power LED Emergency Driver

CONSTANT POWER EMERGENCY OUTPUT

Constant power output maintains the lighting level
Complete emergency operation without downgrade

High-voltage output
20-300VDC

Automatic adjustment of 20-300VDC output range
Wide voltage design.

SELF-DIAGNOSTIC
AUTOMATIC MONTHLY & ANNUAL TESTING

Monthly inspection and annual inspection self-check functions

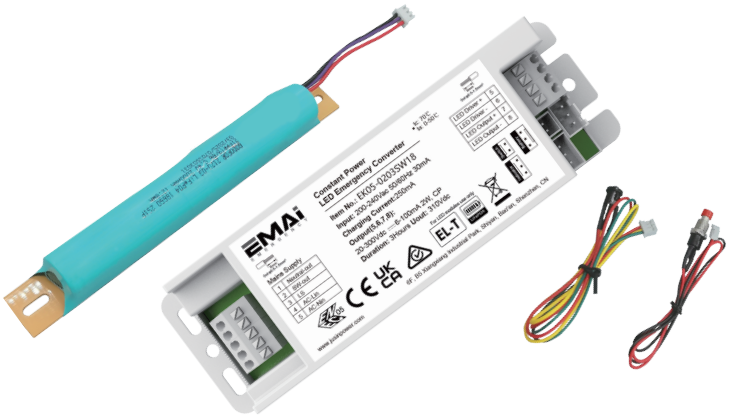
REDUCED FOOTPRINT
WITH LITHIUM TECHNOLOGY

AC ACTIVATE
FOR SIMPLER INSTALLATION

When a fault condition is detected, it will immediately stop charging.
After the fault is resolved, AC is reactivated and charging can resume.

Emergency output

2W/3W/4W/5W (Constant power)



PRODUCT DESCRIPTION

EK05 is an emergency driver that has passed the safety certifications of ENEC, CB, CE, UKCA, and C-tick. It is specifically designed for LED fixtures that integrate LEDs and those with separate LED drivers. The driver is installed inside the fixture and can provide a battery backup power source in case of power failure. When a power outage occurs, it will quickly switch to emergency mode, and the battery will supply power to the fixture at a reduced output power level. This ensures that the product maintains a constant lighting level during emergency operation. It also includes monthly and annual automatic self-check functions.

ADDITIONAL FUNCTIONS

- Suitable for dry environments.
- Suitable for various LED drivers. Convert them from standard drivers to emergency drivers.
- Additional relay, capable of controlling the standard LED driver.
- Deep discharge protection.
- The connector for connecting the emergency kit to the battery has a polarity reversal protection function.
- IP20 protection relies on the casing of the terminal product to prevent accidental contact with live components.
- Not suitable for lighting tasks with high risks.
- 3 years warranty.
- During the testing or transportation process, simply press the test button for 10 seconds to disconnect the battery connection, ensuring long-term storage and transportation.

PRODUCT SPECIFICATIONS

Input voltage	(Universal) 200-240 VAC, 50/60Hz
Input current(300V)	0.07A (max)
Output voltage	20-300VDC
Output current	Automatic adjustment
Output power	5W(max)
The neutral current of the highest AC drive unit	1Amps
Power factor	0.5
Surge	L-N 1KV
Emergency time	90/180 minutes
Operating temperature	0° - 50° C
Total Harmonic Distortion	< 10% (@ Fully charged)
EMI	Compliant with the FCC commercial scope
Emergency mode protection	Battery overvoltage protection Battery under-voltage protection Battery hot-swapping under normal mode protection Battery hot-swapping under emergency mode protection Output open-circuit protection Output short-circuit protection
Battery	LiFePO4 battery with NTC Detection
Battery charging current	250mA(Max)
Battery charging time	24hours

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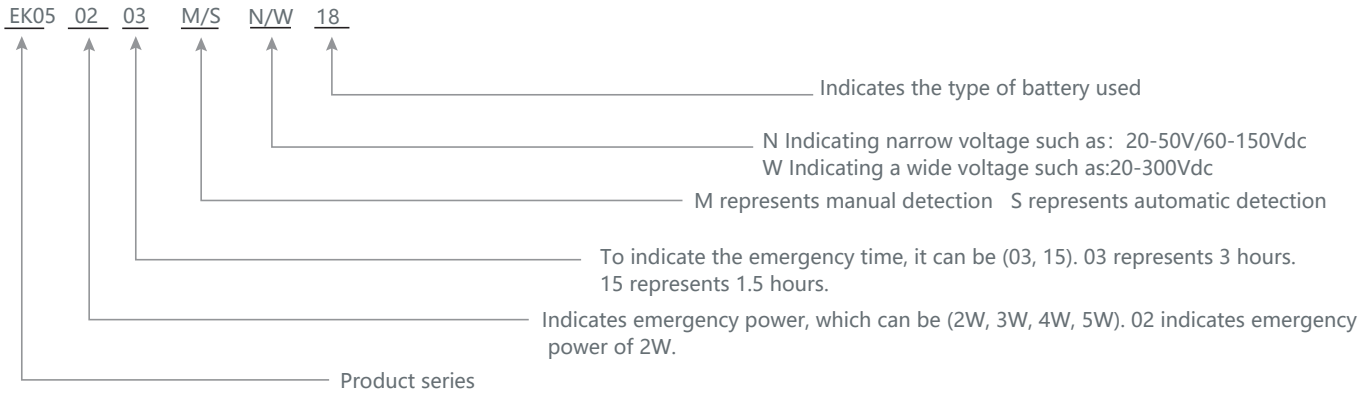
PRODUCT SERIES

Product model	Emergency power	Input voltage	Output voltage	Emergency power&Time	Battery model	Size (L*W*H)
EK05-0203M/SN/W18	2W	200-240VAC 50/60hz	20-300VDC	2W3HRS	6.4V 1600mAH	126*38*22mm
EK05-0203M/SN/W26	2W	200-240VAC 50/60hz	20-300VDC	2W3HRS	3.2V 4000mAH	126*38*22mm
EK05-0303M/SN/W18	3W	200-240VAC 50/60hz	20-300VDC	3W3HRS	6.4V 2000mAH	126*38*22mm
EK05-0303M/SN/W26	3W	200-240VAC 50/60hz	20-300VDC	3W3HRS	3.2V 4000mAH	126*38*22mm
EK05-0415M/SN/W18	4W	200-240VAC 50/60hz	20-300VDC	4W1.5HRS	6.4V 1600mAH	126*38*22mm
EK05-0415M/SN/W26	4W	200-240VAC 50/60hz	20-300VDC	4W1.5HRS	3.2V 4000mAH	126*38*22mm
EK05-0403M/SN/W26	4W	200-240VAC 50/60hz	20-300VDC	4W3HRS	6.4V 4000mAH	126*38*22mm
EK05-0515M/SN/W18	5W	200-240VAC 50/60hz	20-300VDC	5W1.5HRS	6.4V 2000mAH	126*38*22mm
EK05-0515M/SN/W26	5W	200-240VAC 50/60hz	20-300VDC	5W1.5HRS	3.2V 4000mAH	126*38*22mm
EK05-0503M/SN/W26	5W	200-240VAC 50/60hz	20-300VDC	5W3HRS	6.4V 4000mAH	126*38*22mm

Note: Besides the above specifications, other parameters can be customized. Please contact the relevant sales for further details.

ORDERING GUIDE



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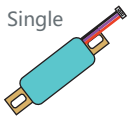
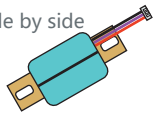
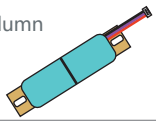
BATTERY PARAMETERS

*1：Battery selection

Single 	Side by side 	Column 	Emergency power（W）	2W		3W		4W		5W	
			Emergency Duration（H）	1.5	3	1.5	3	1.5	3	1.5	3
Battery type	Structure	Cell	Size(L*W*H)	Model								
26650 3.2V 4000mAH	Single with fixed plate	1*1	100*28*29	1140-02			★		★	★		★	
26650 6.4V 4000mAH	Side-by-side with fixed plates	2*1	100*53*29	2140-02							★		★
	Column with fixing plate	2*1	168*28*29	2140-03							★		★
18650 6.4V 1600mAH	Side-by-side with fixed plates	2*1	100*38*21	2116-02			★			★			
	Column with fixing plate	2*1	168*21*21	2116-04			★			★			
18650 6.4V 2000mAH	Side-by-side with fixed plates	2*1	100*38*21	2120-02					★			★	
	Column with fixing plate	2*1	168*21*21	2120-03					★			★	

*1.1：Battery size parameters：（MM）

Figure 1：26650 Single 3.2V 4000mAH

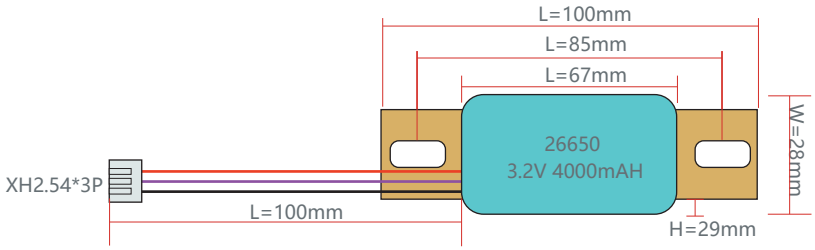
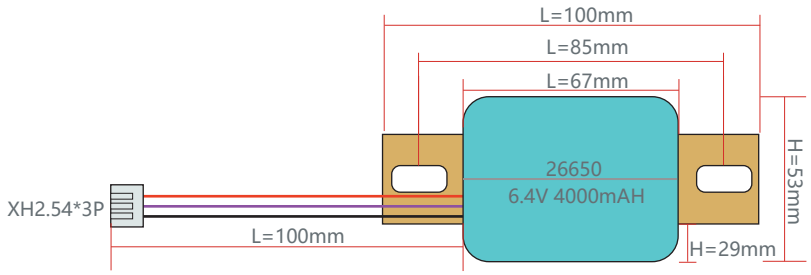


Figure 2：26650 Side by side 6.4V 4000mAH



BATTERY PARAMETERS

Figure 3: 26650 Column 6.4V 4000mAH

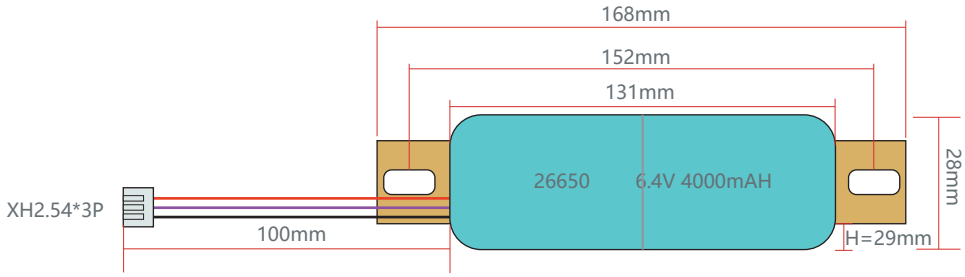


Figure 4: 18650 Side by side 6.4V 1600mAH

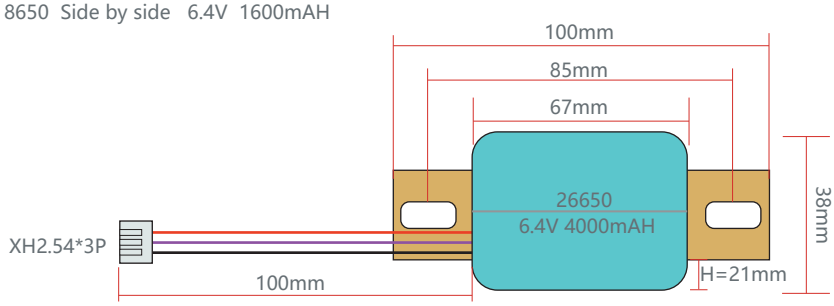
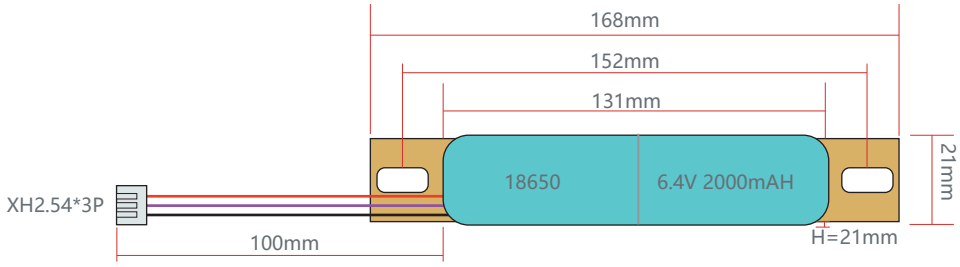


Figure5: 18650 Column 6.4V 2000mAH



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BATTERY PARAMETERS

*2: Battery charging and discharging data

Model number		6.4V/1600mAH		6.4V/2000mAH		6.4V/4000mAH		3.2V/4000mAH			
Emergency power		2W	4W	3W	5W	4W	5W	2W	3W	4W	5W
Duration		3H	1.5H	3H	1.5H	3H	4H	3H	3H	1.5H	1.5H
Battery charge time	Initial charge	24H									
	Trickle charge	Continuous and uninterrupted charging									
Charging current	Initial charge	100-250mA						100-250mA			
	Trickle charge	100-250mA/0mA						100-250mA/0mA			
Discharge current		400-1000mA						800-2000mA			
Charging protection voltage		7.3+/-0.5Vdc						3.6+/-0.5Vdc			
End of discharge voltage		5.5+/-0.2Vdc						2.7+/-0.2Vdc			
Discharge protection voltage		4.2Vdc						2.1Vdc			

Note:

1: When the battery voltage drops below 6.8 V, it charges automatically. When the battery voltage exceeds 7.3 V, the charger is turned off (0 mA). When the 3.2V battery voltage drops below 3.5V, it charges automatically, when the battery voltage exceeds 3.6V, the charger is turned off (0mA).

2: The battery is prevented from being operated at excessively high temperatures (stop charging when the temperature of the battery cell is below 0℃ or above 60℃).

3: After passing the 61347-2-7 CL 22.3 (abnormal conditions) test, the LED emergency lighting driver will normally charge the battery.

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EMERGENCY FUNCTION

This is a maintenance-type emergency device. When the main power is connected, the green charging indicator light should illuminate, indicating that the battery has been correctly activated. The light will remain on. When the power is interrupted, the device will enter emergency mode and the indicator light will also illuminate. Testing and inspection must comply with local operating regulations. Self-check function:

1. Green LED status light on: Normal charging mode, 200 - 240 volt power connected.
2. Monthly test, test duration 15 seconds.
3. 6-month test, test duration 3 hours.
4. Self-check tests are subject to EN62034 regulations.

LED indicator functions:

Off: Normal state, waiting for the next test.

Slow flash 1: 2 seconds on/2 seconds off: Self-check test in progress.

Slow flash 2: 4 seconds on/1 second off: Most recent self-check test completed and passed (stops after 5 days).

Fast flash: 0.5 seconds on/0.5 seconds off: Fault, replace battery or retest the device.

	Colour	The indicator light shows	Status	Comment
	Green	Permanent	Normal charging mode	220-240Vac Supply connected
	Green	Slow flash (2s on, 2s off)	charging	220-240Vac Supply connected
	Yellow	Slow Flash 1: (2s on, 2s off)	Performing self-test	1-Month test, Test duration 15s 6-Month Test. Test duration 3hours
	Yellow/ Green	Slow Flash 2: (4s on, 1s off)	Self-test recently performed and passed	Stop after 5 days 
	Yellow/ Green	Fast Flash 1: (0.5s on, 0.5s off)	1 or 6 Month test failure	Low Battery test automatically.
	Red	Fast Flash 2: (0.5s on, 0.5s off)	Battery failure	Battery failed the duration test or function test / No battery
	Red	Permanent	LED Breakdown	220-240Vac Supply connected
	No	Green off	Emergency mode	Battery operation (DC mode)

After installation, full battery charge after 24 hours. If charging is interrupted by cutting supply off, charging timer will be restarted back zero and count down for another 24 hours. When fully charged, automatic 3-hour discharge test will start. After the initial test, the fitting will enter 1-month and 6-month (Half a year) self-test schedules.

1-Month Test Cycle

a. At the start of the month the yellow indicator will Slow Flash 2 for 5 days and then turn off until the day 30th day

b. On day 30 at the end of month yellow indicator will Slow Flash 1. Green LED will go out, the fitting will enter self-test discharge and will be powered by thebattery for 15s

c. 6-Month Test (half a year): At the start of the 6th month yellow indicator will Slow Flash 2 for 5 days

d. On day 30 at the end of month yellow will Slow Flash 1. Green LED will go out, the fitting will enter self-test discharge and will be powered by the battery for 3 hours.

Note: To avoid limited battery capacity in the event of mains failure. Self-Test emergency fitting discharge times will be staggered throughout the building by 2-20 hours

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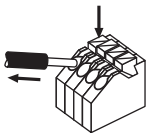
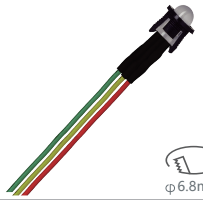
WIRE SPECIFICATION(MM)

Illustration	Name	Specification parameters	Size(mm)	Single-piece weight(g)
	IP20 Terminal	Applicable for 16-20# wire connections		5.0
	Input terminal - Output terminal wiring			
 φ7.2mm	IP20 Test button	24# 80℃ 300V Red and black electronic wire. One end has 2P*PH2.0 terminals. The other end is soldered with a test button.	300	5.0
	For testing, emergency function test			
 φ12.2mm	IP67 Test button (Alternative)	24# 80℃ 300V ed and black electronic wire. One end has 2P*PH2.0 terminals. The other end is soldered with a test button.	300	12.0
	For testing, emergency function test			
 φ6.8mm	IP20 Dual-color indicator light	24# 80℃ 300V Red, Yellow, Green. One end has 3P * PH2.0 terminals. The other end is connected with an F5 dual-color indicator light.	300	4.0
	1: Green: Normal charging, Yellow: Rapid flashing 2: For details of the fault, please refer to (Emergency Function Page)			
 φ12.2mm	IP67 Dual-color indicator light(Alternative)	24# 80℃ 300V Red, Yellow, Green. One end has 3P * PH2.0 terminals. The other end is connected with an F5 dual-color indicator light.	300	12.0
	1: Green: Normal charging, Yellow: Rapid flashing 2: For details of the fault, please refer to (Emergency Function Page)			

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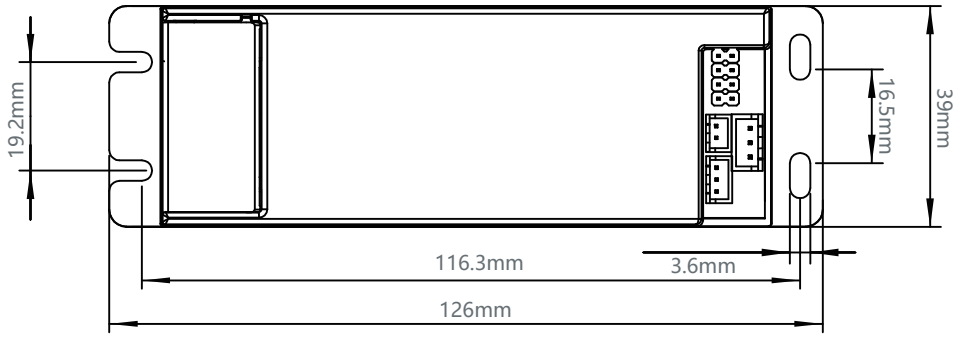
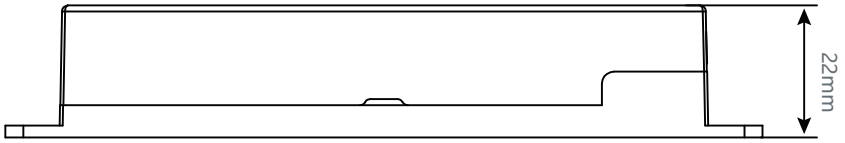
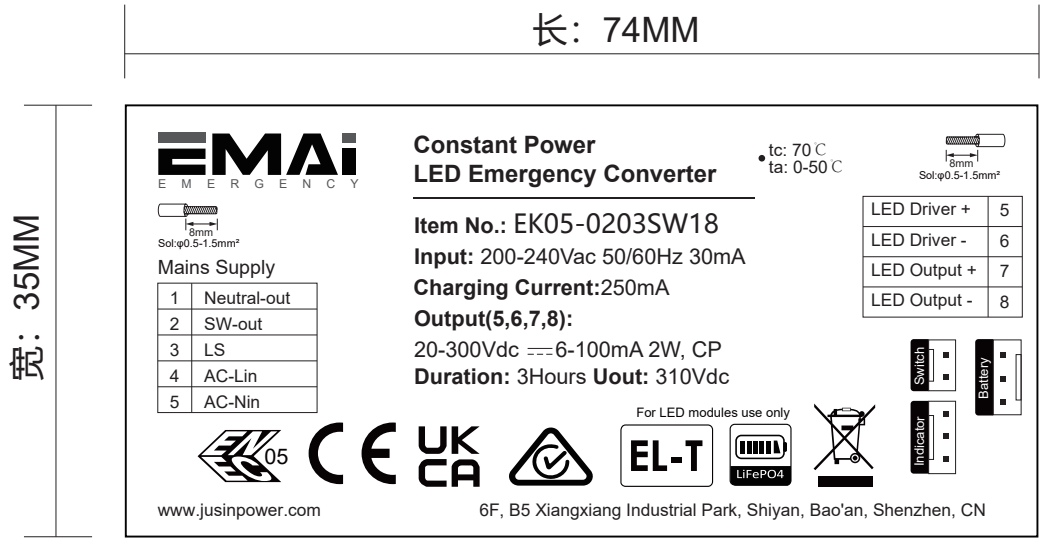
PRODUCT SIZE(MM)





LABEL IMAGE(MM)



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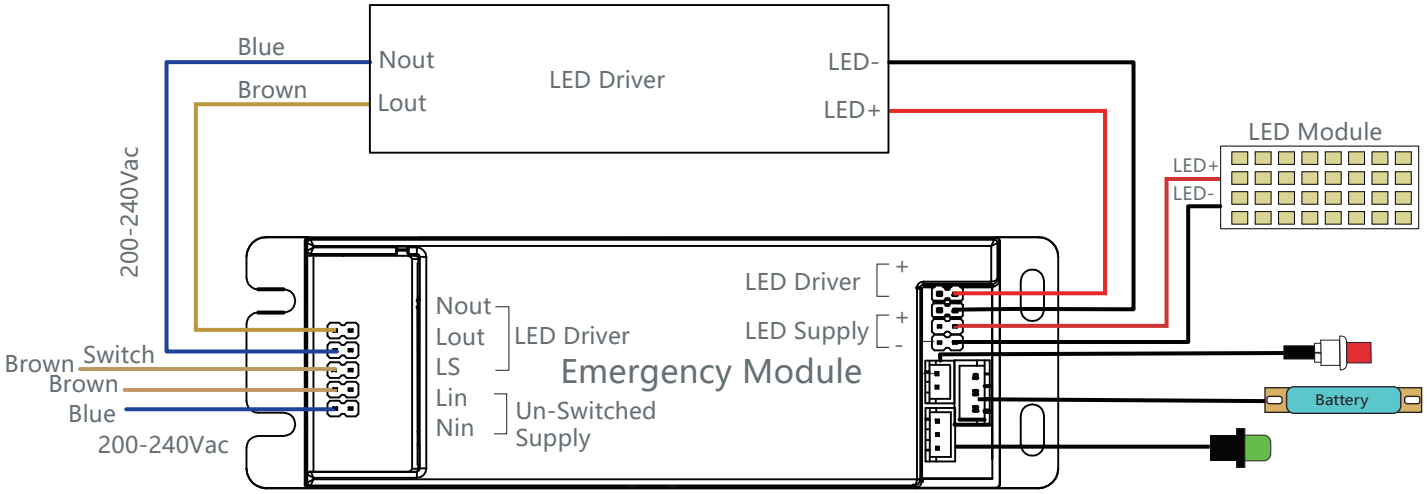
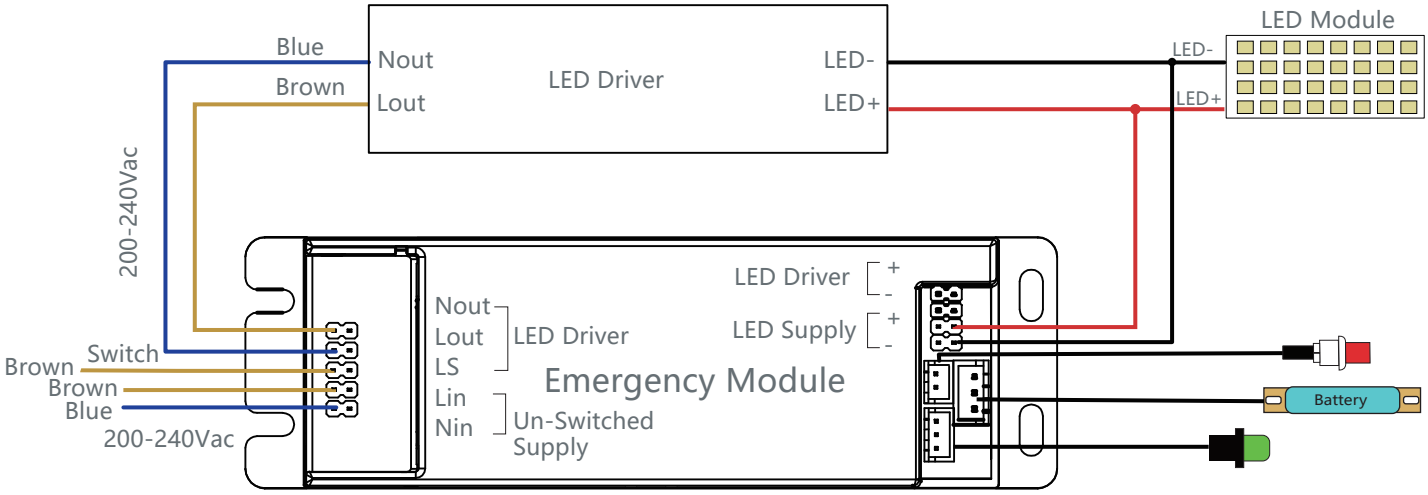
PRODUCT WIRING DIAGRAM

Connection method1:Driver output current≤1A



Connection method2: Driver output current>1A



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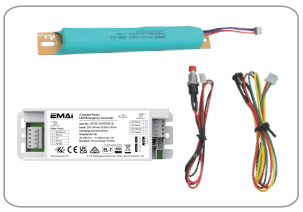
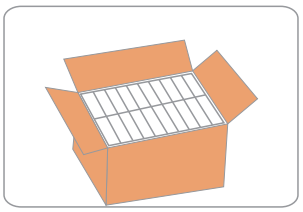
PRODUCT PACKAGING:



电源

独立包装



台* 层= 台/ 箱

INSTALLATION INSTRUCTIONS:

Before installation or maintenance, ensure that the electrical power supply of the lamp is turned off, and remove the circuit breaker or fuse of the mains power supply to be in the off state. It is recommended to consult or use a qualified electrician for the installation of this product and install it according to the current version of the IEE wiring specifications and relevant building regulations. Check that the total load on the circuit (including when installing this product) does not exceed the rated value of the line cable, fuse or circuit breaker.

• When powering on, connect the battery first, then connect the unswitched power supply. It is necessary to connect the battery first.

• The green LED light will immediately flash for 1 second to indicate that there is an unfinished duration test.

• The duration test will be conducted at a random time point between 24 hours and 48 hours after debugging, to allow at most 24 hours for charging the battery.

• Any faults found during the duration test will be reported through the LED indicator light as described below.

• Disconnect the unswitched power supply, then disconnect the battery, which will reset the schedule of the emergency module. This means that the functional test will be performed within 7 days from the reset time, and the duration test will be performed within 52 weeks.

• The reset module will not clear the battery duration faults and indicator lights or lamp faults. Users should start the duration test or functional test to clear these faults.

• The battery should be stored in a clean, dry and well-ventilated room with an ambient temperature ranging from -5℃ to 35℃. It should be kept away from corrosive substances and should be kept at a distance from fire sources and heat sources. The battery should be charged once every six months during storage.