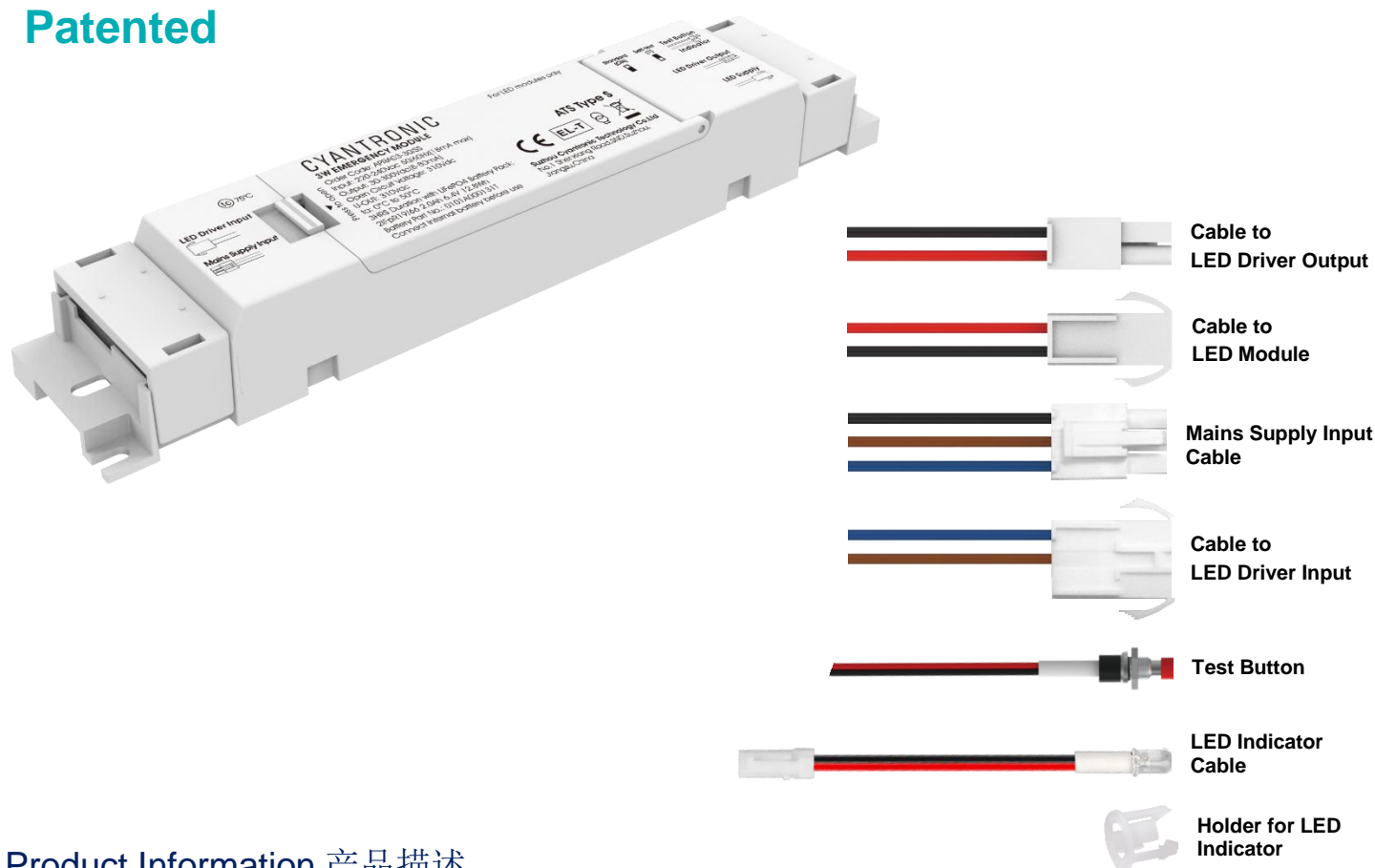


α Pro A

Manual and Self-Test 2 in 1 Internal Emergency Module for LED Linear Luminaires

适用于 LED 线条型灯具的手动/自检 2 合 1 内置式应急电源

Patented



Product Information 产品描述

This emergency module can be used built-in for the LED linear luminaires with integrated LEDs. It is designed for installing within the fitting to provide a battery back-up supply in the event of a power cut. The emergency module requires a permanent live un-switched supply to maintain the battery charge. In the event of a power cut the battery will supply the luminaire at a reduced output.

It is provided with self-test mode and annual duration test as default. Automatic Self-Test technology that will perform regular automatic function and duration tests as required by EN 62034, reporting the results via a bi-coloured LED indicator.

此应急电源适用于 LED 灯具，可安装于灯具内部。应急电源需要持续通电以维持电池电量。在停电的情况下，电池以较低的功率给灯具中 LED 模组供电。

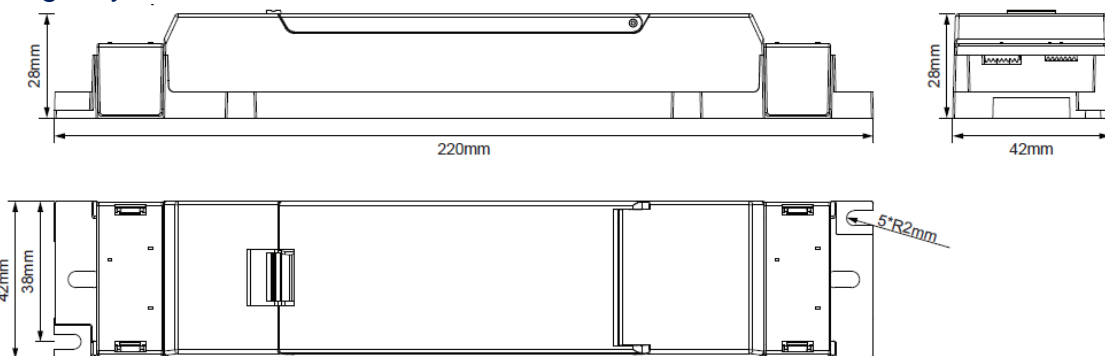
应急电源出厂默认设置为自测试模式、每年度放电时间检测，自检功能指按照 EN62034 的要求执行定期的自动功能和持续时间测试，并通过双色 LED 指示灯报告结果。

Features 产品特点

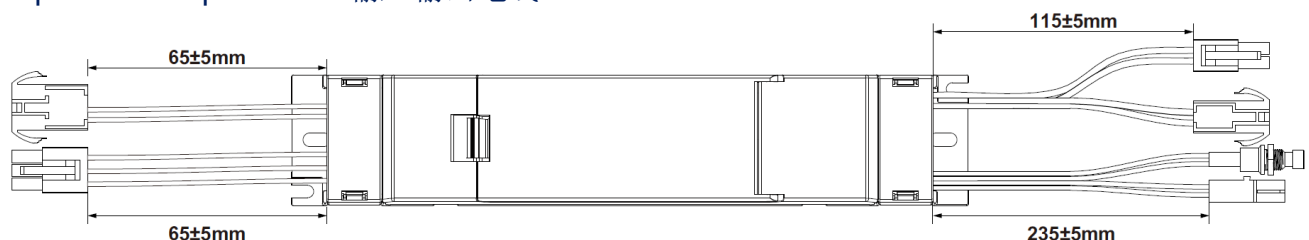
- Triple-press test button to change test mode (manual/self-test)
- Double-press test button to change duration test interval (26weeks/52weeks)
- For maintained or non-maintained emergency lighting systems
- Automatic Self-Test technology conforming to EN 62034
- Conforms to EN 61347-1 and EN 61347-2-7
- Wired between driver and LED module via wiring leads with connector
- Suitable for use in luminaires for high-risk task area lighting
- Voltage change-over threshold according to EN 60598-2-22
- 3 hours rated duration
- Replaceable internal LiFePO4 battery pack
- Over-charge, over-current, short-circuit and deep discharge protection for battery
- Bi-coloured status LED indicator
- Weekly function test and yearly/semi-yearly duration test for self-test mode
- For built-in
- Battery charging temperature control
- 三击测试按钮设置手动/自测试模式
- 双击测试按钮设置持续时间检测周期 (26周/52周)
- 用于持续式或非持续式应急照明灯具
- 自检功能符合标准EN 62034
- 符合EN61347-1, EN61347-2-7
- 通过带端子电线与电源及LED模组接线
- 适用于高风险任务区照明的灯具
- 应急转换符合标准 EN 60598-2-22
- 3小时应急工作时间
- 内置的且方便更换的磷酸铁锂电池组
- 具有过充,过流,短路,电池深度放电保护功能
- 双色状态指示灯
- 自检模式下每周功能检测,每年/每半年持续时间检测
- 内置式应用
- 电池充电温度控制

Dimensions 产品尺寸

Emergency Module 应急模块

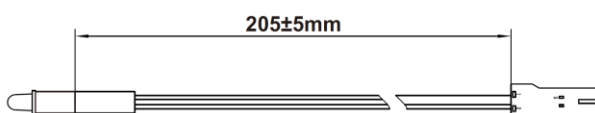


Input and Output Cabel 输入输出电线



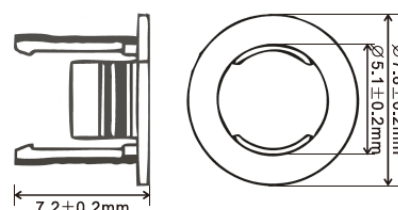
LED Indicator Cable

LED 指示灯电线



Indicator Holder

指示灯固定座



Product Code 产品型号	APRA03-30/ST
Input Parameters 输入参数	
Rated Input Voltage Range 额定工作电压范围	220-240Vac
Operation Input Voltage Range 输入电压范围	198-264Vac
Input frequency 工作频率	50/60Hz
Input Wattage (max) 输入功率（最大值）	3.5W @Rated Input Voltage & Battery full discharge 3.5W @额定工作电压输入及电池完全放电后
Input Current (max) 输入电流（最大值）	18mA @Rated Input Voltage & Battery full discharge 18mA @额定工作电压输入及电池完全放电后
Input PF 功率因数	PF:0.75 @Rated Input Voltage & Battery full discharge PF:0.75 @额定工作电压输入及电池完全放电后
Overvoltage Protection 过压保护	No
Input Connection 输入端连接方式	Wiring leads with connector 带端子电线
Output Parameters 输出参数	
Regulation Method 恒定方式	Constant Wattage 恒功率
Battery Output Wattage(max) 电池输出功率(最大值)	3W Max
Rated Output Wattage 额定输出功率	2.5W Max
Rated Output Voltage Range 额定输出电压范围	30-300Vdc
Rated Output Current Range 额定输出电流范围	8-80mA
Max. Open Circuit Voltage 最大开路电压	310Vdc
U-OUT	310Vdc
Short-circuit Protection 短路保护	Yes (For battery)
Open Circuit Protection 开路保护	Yes (For self-test mode)
Output Connection 输出端连接方式	Wiring leads with connector 带端子电线
Output Hot Plug-in 输出热拔插	When the driver is powered on and the battery is connected, reconnecting the LED luminaire is not allowed. 通电状态下，不允许重新插拔负载

Safety 安全	
Input to Output Protection 输入到输出防护等级	Double Insulation 双重绝缘
Battery to Output Protection 电池到输出防护等级	Basic Insulation 基本绝缘
Mains Surge Capability 雷击	L-N:1KV
IP Protection IP 等级	IP20, Built-in Driver IP20, 内置式电源
Emergency Information 应急信息	
Mains Voltage Changeover Threshold 应急转换电压范围	144-187Vac
Emergency Operation Time 应急工作时间	3h
Emergency Conversion Time 应急转换时间	<1s
Test Function 检测方式	Automatic test / Manual test 自测试/手动测试 Refer to Automatic / Manual Testing User Guide 参考自测试/手动测试用户指南
Environment & Life time 环境&寿命	
Operating Temperature Range 工作环境温度	Ta:0 to 50°C
Maximum Case Temperature 外壳最高温度	Tc:75°C
Operating Humidity 工作环境湿度	<75% RH (Not Condensing)
Operating Altitude 工作海拔高度	≤3000m
Driver Storage temp./humidity 驱动储存温度/湿度	-20-50°C(≤75% RH)
Driver Guarantee 驱动保修期	5 Years 5 年
Certifications and Standards 认证和标准	
Certifications 认证	ENEC, CB, CE, RCM
Safety 安全	EN 61347-1, EN 61347-2-7
EMC	EN55015, EN61000-3-2, EN61000-3-3, EN61547
RoHS	Directive 2011/65/EU with amendment (EU) 2015/863
Reach	No.1907/ 2006(EC) SVCH 240

Patent 专利	
EP3229557B1	EMERGENCY LIGHTING
CN109640479B	一种兼恒功率输出的应急驱动的照明装置

Battery Pack 电池组	
Battery Model 电池型号	2IFpR19/66 2.0Ah 6.4V
Cell Type 电芯规格	LiFePO4 18650 3.2V 2000mAh
Number of cells 电芯数量	2
Series-parallel Combination 串并联方式	2S1P
Rated Battery Capacity 标称电池容量	2000mAh
Rated Battery Voltage 标称电池电压	6.4V
Battery Energy 电池能量	12.8Wh
Battery Charge Voltage 电池充电电压	7.3±0.1V
Battery Charge Current 电池充电电流	Max.180mA
Battery Discharge Voltage 电池放电电压	5.0-7.2V
Battery Discharge Current 电池放电电流	450-480mA
Charging Time 充电时间	24h
Charge Temperature Range Tmin-Tcmax 充电温度范围	0 to 65°C
Battery Design Life 电池设计寿命	5 Years at 50°C
Max. storage time 最长储存时间	12 months at +5 °C to +25 °C

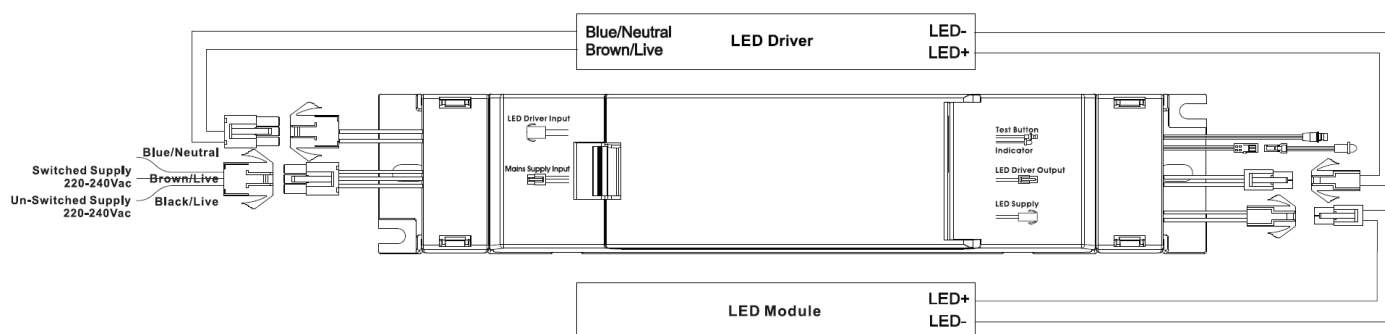
Customizable Accessories 可定制配件

Type 类型	Description 描述
LED indicator & Test button cable 指示灯及测试按钮线	Bi-coloured status LED indicator and test button cable with 4-pole plug 带4位连接器的双色状态指示灯和测试按钮电线
Mains Supply Input Cable 市电输入线	3-pole wiring leads with connector for connecting to mains supply 3 芯电线，含与市电输入端连接的端子

Cable to LED Driver Input LED 驱动输入线	2-pole wiring leads with connector for connecting to LED driver output 2 芯电线, 含与 LED 电源输入端连接的端子
Output Cable to LED Module 输出线	2-pole wiring leads with connector for connecting to LED module 2 芯电线, 含与 LED 模组连接的端子
Output Cable to LED Driver Output 输出线	2-pole wiring leads with connector for connecting to LED driver output 2 芯电线, 含与 LED 电源输出端连接的端子

Wiring Diagram 接线图

Driver output current $\leq 2A$ 驱动输出电流 $\leq 2A$



Self-Test Mode: Automatic / Manual Testing User Guide

Commissioning

- Commissioning takes place by connecting the battery and then the un-switched supply. The battery must be connected first.
- The green LED will immediately flash 1 x second to indicate that there is a pending duration test.
- A functional test will occur at 5 minutes after commissioning to allow 5 minutes for battery charging to ensure there is some charge in the battery.
- A duration test will occur at a random point between 24 hours and 48 hours after commissioning to allow 24 hours for battery charging.
- Any faults found in the functional and duration testing will be reported via the LED indicator, as detailed below.
- Disconnecting the un-switched supply and then the battery resets the emergency module, clears all fault reports and forces a re-commission when the battery and then the un-switched supply are reconnected.
- **If the un-switched supply of an emergency lighting circuit is switched OFF/ON twice within 5 seconds, the schedule for all the emergency units in the emergency lighting circuit is reset (to the current time).**

Duration Testing (3 hours)

- An automatic duration test will occur at a random point between 24 hours and 48 hours after commissioning to allow for battery charging.
- An automatic duration test will occur semi-annually or annually at a random point in the 26nd or 52nd week of each year.
- A duration test will occur once the battery is fully charged after pressing the manual test button for 5-10 seconds.
- A duration test may be delayed by other events, such as a power cut that interrupts the test or a lack of charging time, in which case the green LED will flash 1 x second to indicate there is a pending duration test that the emergency module has rescheduled.
- Any faults found in the duration testing will be reported via the LED indicator, as detailed below.
- A functional test will not override any faults reported by a duration test. A full duration test or re-commissioning is required to clear any faults.

Functional Testing (<2 minutes)

- A 5 seconds automatic functional test will occur at 5 minutes after commissioning.
- A 108 seconds automatic functional test will occur every 7 days.
- A manual 108 seconds functional test will start immediately after pressing the manual test button for 1-2 seconds.
- Any faults found in the functional testing will be reported via the LED indicator, as detailed below.
- A functional test will not override any faults reported by a duration test. A full duration test or re-commissioning is required to clear any faults.

Manual Testing

- Manual functional test: Press the manual test button for 1-2 seconds. A manual functional test lasting <2 minutes will start immediately.
- Manual duration test: Press the manual test button for 5-10 seconds. A manual duration test will occur once the battery is fully charged after pressing the manual test button for 5-10 seconds.

Pending Duration Testing

- A duration test may be delayed by other events, such as a power cut that interrupts the test or charging period, in which case the green LED will flash to indicate there is a pending duration test that the emergency module has rescheduled until charging is complete.

Lamp or Luminaire Fault

- Turn off the supply and replace or correct the fault with the lamp or luminaire, and then reconnect the supply.
- Press the manual test button for 1-2 seconds. A manual functional test lasting <2 minutes will start immediately to clear the fault.
- Alternatively press the manual test button for 5-10 seconds. A manual duration test will occur once the battery is fully charged.
- If the battery and power have been disconnected the emergency module will re-commission and automatically test the replacement.
- A successful functional test will not override any faults reported by a duration test. A full duration test or re-commissioning is required to clear fault reports.

Battery Fault

- Turn off both the un-switched and switched supply and replace the battery, and then reconnect the supply.
- If the battery fault was due to the battery not being connected, both the un-switched and switched supply must off when connecting the battery to clear the battery fault.
- The emergency module will re-commission and so automatically test the replacement at a random point between 24 and 48 hours after commissioning to allow for battery charging.

Manual Mode: Manual Testing User Guide
























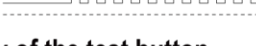
- The battery leaves the factory in a semi-charged state but may take up to 24 hours to fully charge for a 3-hour test. Charge for 5 minutes before performing a functional test to ensure there is some charge in the battery.
- To fully test the emergency function, the un-switched supply will need to be switched off. A quick functional test can be performed by pressing the test button.
- Replace the battery when the emergency module fails to meet the 3-hour duration requirement in testing.

Rest Mode

- Emergency operation is automatically started when the mains supply is switched off. Rest mode can be activated during emergency mode by doubling press the manual test button. The discharging of the battery will be minimized by switching off the LED output. The rest mode will be exited automatically after reconnect the supply.



LED Indicator

System status is locally indicated by a bi-coloured LED indicator.

LED indication		Description	Status	Manual Mode	Self-test Mode
		Green Permanently On	System Healthy	✓	✓
		Permanently OFF	Emergency Mode: Mains failure or mains disconnected	✓	✓
		Battery disconnected		✓	N/A
		Green Slow Flash (0.5s on-0.5s off)	Duration Test Pending	N/A	✓
		Green Medium Flash (0.25s on-0.25s off)	Duration Test Running	N/A	✓
		Green Fast Flash (0.125s on-0.125s off)	Functional Test Running	N/A	✓
		Red Permanently On	Battery Charging Fault	N/A	✓
		Red Medium Flash (0.25s on-0.25s off)	Battery Duration Fault	N/A	✓
		Red Fast Flash (0.125s on-0.125s off)	Lamp or Luminaire Fault	N/A	✓
		OFF 1s then Red Stay On 5s	26 Weeks Duration Test Interval	N/A	✓
		OFF 1s then Red Fast Flash 5s (0.125s on-0.125s off)	52 Weeks Duration Test Interval	N/A	✓
		OFF 1s then Green Fast Flash 5s (0.125s on-0.125s off)	Manual mode	✓	N/A
		OFF 1s then Green/Red Fast Flash 5s (0.125s on-0.125s off)	Self-test mode	N/A	✓

Functionality of the test button

The test button enables you to make a series of settings manually.

Test button		Description	Function	Manual Mode	Self-test Mode
		Hold down	Manual functional test	✓	N/A
		Press 1-2s	Manual functional test	N/A	✓
		Press 5-10s	Manual duration test	N/A	✓
		Press <1s	Confirm the current duration test interval	N/A	✓
		Double press <1s	Set the duration test interval	N/A	✓
		Double press <1s during emergency mode	Rest mode activated	✓	✓
		Triple press <2s	Set test mode (Manual/Self-test)	✓	✓