

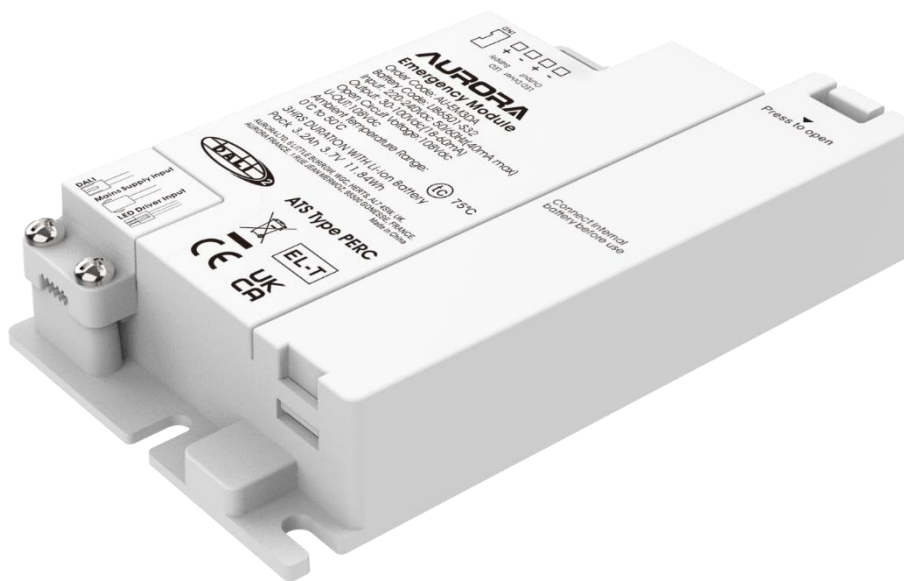
# α Compact A

## Internal Emergency Module with DALI Interface and Automatic Test Function for LED Surface Luminaires

适用于 LED 表面安装灯具的带 DALI 接口和自检功能的内置式应急电源

AU-EM3DA

Patented



## Product Information 产品描述

This emergency module with DALI interface and automatic test function can be used in LED luminaires with integrated LEDs and separate LED drivers. 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 luminaires at a reduced output.

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.

此具有 DALI 接口和自检功能的应急电源适用于 LED 灯具，并安装于灯具内部。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。

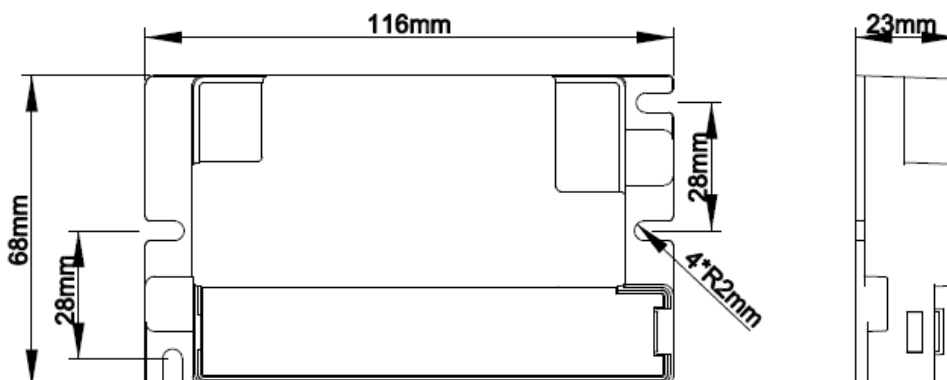
由控制装置发出的 DALI 指令可用于在选定的时间启动功能和持续时间测试。设置状态标志用于报告反馈和结果记录。

## Features 产品特色

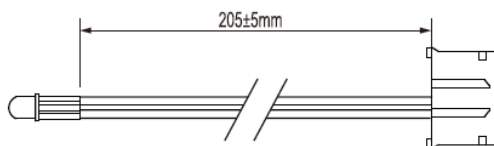
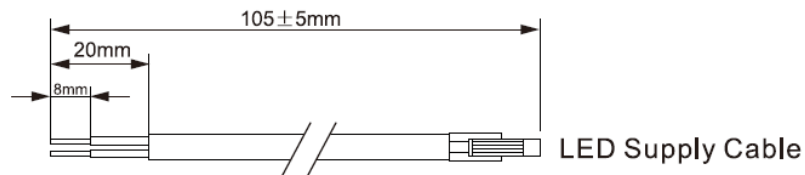
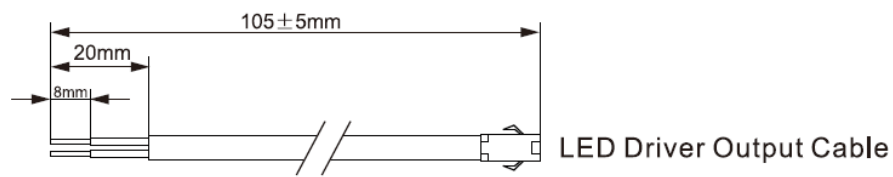
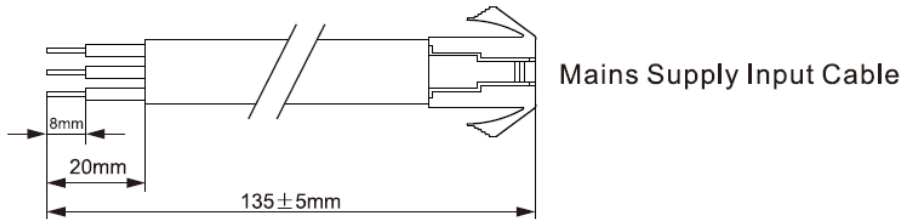
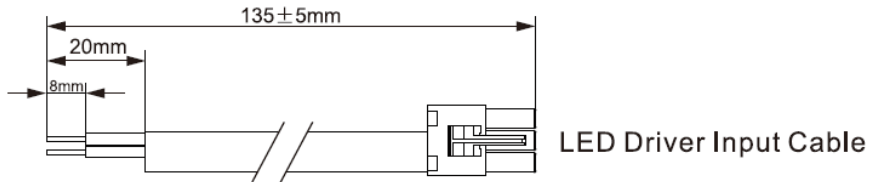
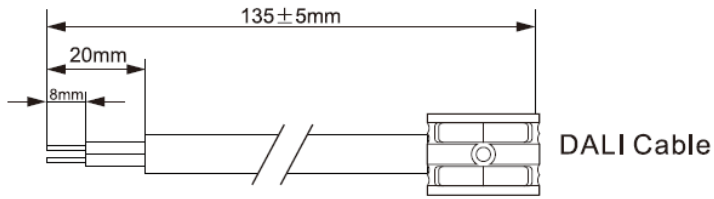
- For LED modules with a forward voltage of 24-190Vdc
- For maintained or non-maintained emergency lighting systems
- Automatic Self-Test technology conforming to EN 62034
- DALI conforming to EN 62386-101, EN 62386-102, EN 62386-202
- Conforms to EN 61347-1 and EN 61347-2-7
- Wired between driver and 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 Li-ion battery pack
- Over-charge, over-current, short-circuit and deep discharge protection for battery
- Bi-coloured status LED
- Weekly function test and yearly duration test as factory default
- Constant power output
- For built-in
- Battery charging temperature control
- 适用于电压为24-190Vdc的LED模组
- 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
- DALI符合标准EN 62386-101, EN 62386-102, EN 62386-202
- 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
- 出厂设置为每周功能检测年度持续时间检测
- 恒功率输出
- 内置式应用
- 电池充电温度控制

## Dimensions 产品尺寸

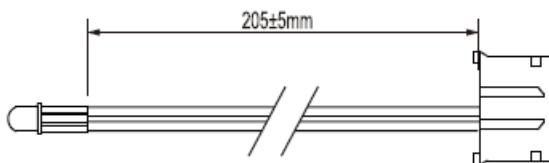
### Emergency Module 应急模块



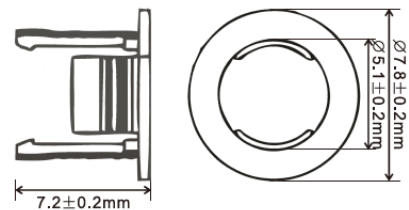
Input and Output Cabel 输入输出电线



Indicator Cable 指示器电线



Indicator Holder 指示灯固定座



|                                            |                                                                                                                                   |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Cyantronic Product Code<br>印锐产品型号          | ACA03-30/DA                                                                                                                       |
| Aurora Product Code<br>Aurora 产品型号         | AU-EM3DA                                                                                                                          |
| Input Parameters<br>输入参数                   |                                                                                                                                   |
| Rated Input Voltage Range<br>额定工作电压范围      | 220-240Vac                                                                                                                        |
| Operation Input Voltage Range<br>输入电压范围    | 198-264Vac                                                                                                                        |
| Input frequency<br>工作频率                    | 50/60Hz                                                                                                                           |
| Input Wattage (max)<br>输入功率 (最大值)          | 2.5W @Rated Input Voltage & Battery full discharge<br>2.5W @额定工作电压输入及电池完全放电后                                                      |
| Input Current (max)<br>输入电流 (最大值)          | 16mA @Rated Input Voltage & Battery full discharge<br>16mA @额定工作电压输入及电池完全放电后                                                      |
| Input PF<br>功率因数                           | PF:0.6 @Rated Input Voltage & Battery full discharge<br>PF:0.6 @额定工作电压输入及电池完全放电后                                                  |
| Overvoltage Protection<br>过压保护             | No                                                                                                                                |
| Input Connection<br>输入端连接方式                | Wiring leads with connector                                                                                                       |
| Output Parameters<br>输出参数                  |                                                                                                                                   |
| Regulation Method<br>恒定方式                  | Constant Wattage<br>恒功率                                                                                                           |
| Battery Output Wattage(max)<br>电池输出功率(最大值) | 3W Max                                                                                                                            |
| Rated Output Wattage<br>额定输出功率             | 2W Max                                                                                                                            |
| Rated Output Voltage Range<br>额定输出电压范围     | 24-190Vdc                                                                                                                         |
| Rated Output Current Range<br>额定输出电流范围     | 11-80mA                                                                                                                           |
| Max. Open Circuit Voltage<br>最大开路电压        | 200Vdc                                                                                                                            |
| U-OUT                                      | 200Vdc                                                                                                                            |
| Short-circuit Protection<br>短路保护           | Yes (For battery)                                                                                                                 |
| Open Circuit Protection<br>开路保护            | No                                                                                                                                |
| Output Connection<br>输出端连接方式               | Wiring leads with connector<br>带端子的电线                                                                                             |
| Output Hot Plug-in<br>输出热拔插                | When the driver is powered on and the battery is connected,<br>reconnecting the LED luminaire is not allowed.<br>通电状态下, 不允许重新插拔负载 |

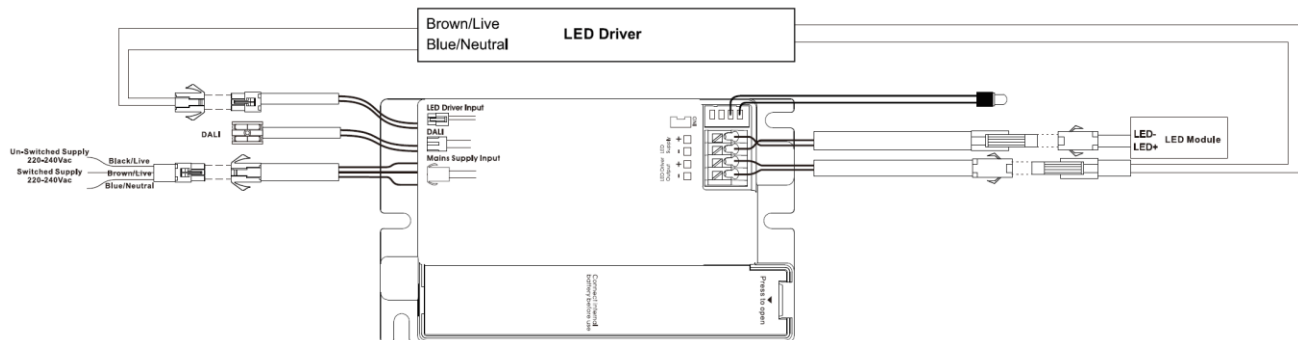
|                                                       |                                                                                                                              |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Safety</b><br>安全                                   |                                                                                                                              |
| <b>Input to Output Protection</b><br>输入到输出防护等级        | <b>Double Insulation</b><br>双重绝缘                                                                                             |
| <b>Battery to Output Protection</b><br>电池到输出防护等级      | <b>Basic Insulation</b><br>基本绝缘                                                                                              |
| <b>Mains Surge Capability</b><br>雷击                   | <b>L-N:1KV</b>                                                                                                               |
| <b>IP Protection</b><br>IP 等级                         | <b>IP20, Built-in Driver</b><br>IP20, 内置式电源                                                                                  |
| <b>Emergency Information</b><br>应急信息                  |                                                                                                                              |
| <b>Mains Voltage Changeover Threshold</b><br>应急转换电压范围 | <b>144-187Vac</b>                                                                                                            |
| <b>Emergency Operation Time</b><br>应急工作时间             | <b>3h</b>                                                                                                                    |
| <b>Emergency Conversion Time</b><br>应急转换时间            | <b>&lt;1s</b>                                                                                                                |
| <b>Test Function</b><br>检测方式                          | <b>Automatic Self-Test / Manual test</b><br>自测试/手动测试<br><b>Refer to DALI-2 Emergency Module User Guide</b><br>参考 DALI 应急用户指南 |
| <b>Environment &amp; Life time</b><br>环境&寿命           |                                                                                                                              |
| <b>Operating Temperature Range</b><br>工作环境温度          | <b>Ta:0 to 45°C</b>                                                                                                          |
| <b>Maximum Case Temperature</b><br>外壳最高温度             | <b>Tc:75°C</b>                                                                                                               |
| <b>Operating Humidity</b><br>工作环境湿度                   | <b>&lt;75% RH (Not Condensing)</b>                                                                                           |
| <b>Operating Altitude</b><br>工作海拔高度                   | <b>≤3000m</b>                                                                                                                |
| <b>Driver Storage temp./humidity</b><br>驱动储存温度/湿度     | <b>-20-50°C(≤75% RH)</b>                                                                                                     |
| <b>Driver Guarantee</b><br>驱动保修期                      | <b>5 Years</b><br>5 年                                                                                                        |
| <b>Certifications and Standards</b><br>认证和标准          |                                                                                                                              |
| <b>Certifications</b><br>认证                           | <b>CE</b>                                                                                                                    |
| <b>Safety</b><br>安全                                   | <b>EN 61347-1, EN 61347-2-7</b>                                                                                              |
| <b>EMC</b>                                            | <b>EN55015, EN61000-3-2, EN61000-3-3, EN61547</b>                                                                            |
| <b>DALI-2</b>                                         | <b>EN 62386-101, EN 62386-102, EN 62386-202</b>                                                                              |
| <b>RoHS</b>                                           | <b>Directive 2011/65/EU with amendment (EU) 2015/863</b>                                                                     |
| <b>Reach</b>                                          | <b>No.1907/ 2006(EC) SVCH 240</b>                                                                                            |

|              |                    |
|--------------|--------------------|
| Patent<br>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<br>电池组                               |                              |
| Battery Model<br>电池型号                             | 11NR19/66 3.2Ah 3.7V         |
| Cell Type<br>电芯规格                                 | Li-ion 18650 3.7V 3200mAh    |
| Number of cells<br>电芯数量                           | 1                            |
| Series-parallel Combination<br>串并联方式              | 1S1P                         |
| Rated Battery Capacity<br>标称电池容量                  | 3200mAh                      |
| Rated Battery Voltage<br>标称电池电压                   | 3.7V                         |
| Battery Energy<br>电池能量                            | 11.84Wh                      |
| Battery Charge Voltage<br>电池充电电压                  | 4.2±0.1V                     |
| Battery Charge Current<br>电池充电电流                  | Max.220mA                    |
| Battery Discharge Voltage<br>电池放电电压               | 3.0-4.2V                     |
| Battery Discharge Current<br>电池放电电流               | 670-700mA                    |
| Charging Time<br>充电时间                             | 24h                          |
| Charge Temperature Range<br>Tcmin-Tcmax<br>充电温度范围 | 0 to 50°C                    |
| Battery Design Life<br>电池设计寿命                     | 5 Years at 40°C              |
| Max. storage time<br>最长储存时间                       | 12 months at +5 °C to +25 °C |

## Wiring Diagram 接线图

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



## DALI-2 Emergency Module 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 duration test will occur at a random point between 24 hours and 48 hours after commissioning to allow up to 24 hours for battery charging.
- Any faults found in the duration testing will be reported via the LED indicator, as detailed below and using the DALI-2 protocol.
- 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.
- The factory presets specify that the functional test is performed every 7 days and the duration test every 52 weeks. Disconnecting the un-switched supply and then the battery resets the emergency module's schedule, this means that a function test will be performed 7 days from the time of reset and a duration test will be performed in 52 weeks.

### 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 annually at a random point in the 52nd week after commissioning, unless the DELAY time and INTERVAL time are modified by appropriate commands via the DALI bus.
- 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 continue to flash 1 x second to indicate there is a pending duration test.
- Any faults found in the duration test will be reported via the LED indicator, as detailed above as well as over the DALI-2 protocol.
- A functional test will not override Battery Duration Fault. A full duration test or re-commissioning is required to clear such fault.

### Functional Testing (<2 minutes)

- A short automatic functional test will occur every 7 days, unless the DELAY time and INTERVAL time are modified by appropriate commands via the DALI bus.
- Any faults found in the functional test will be reported via the LED indicator, as detailed above as well as over the DALI-2 protocol.
- A functional test will not override Battery Duration Fault. A full duration test or re-commissioning is required to clear such fault.

### Pending Duration Testing

- A duration test may be delayed by 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 and that the emergency module has rescheduled until charging is complete.

### Lamp or Luminaire Fault

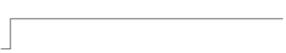
- Turn off the supply and replace or correct the fault with the lamp or luminaire, and then reconnect the supply.
- If the battery and power have been disconnected the emergency module will re-commission and automatically test the replacement.
- A functional test will not override Battery Duration Fault. A full duration test or re-commissioning is required to clear such fault.

### Battery or Duration 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.

## LED Indicator

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

| LED indication                                                                      |                                                                                     | Description                                              | Status                                              |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------|
|    |    | Green Permanently On                                     | System Healthy                                      |
|    |    | Permanently OFF                                          | Emergency Mode: Mains failure or mains disconnected |
|    |    | Green Slow Flash<br>(0.5s on-0.5s off)                   | Duration Test Pending                               |
|    |    | Green Medium Flash<br>(0.25s on-0.25s off)               | Duration Test Running                               |
|    |    | Green Fast Flash<br>(0.125s on-0.125s off)               | Functional Test Running                             |
|   |   | Red Permanently On                                       | Battery Charging Fault                              |
|  |  | Red Medium Flash<br>(0.25s on-0.25s off)                 | Battery Duration Fault                              |
|  |  | Red Fast Flash<br>(0.125s on-0.125s off)                 | Lamp or Luminaire Fault                             |
|  |  | Green Fast Flash Twice<br>(0.1s on-0.1s off) then off 1s | Inhibit Mode Activated                              |