



Willem Melk

Region Sales Manager Europe

LED EVENT November 2017

FULHAM®

Global Footprint





FULHAM
Lighting... Global. Intelligent. Sustainable.

Europe

Fulham Company B.V. (Europe)
Berenkoog 56
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Netherlands

LED Driver solutions

FULHAM
LUMO SERIES™

FULHAM
WORKHORSE LED™

LED Emergency Lighting Solutions

FULHAM
HOTSPOT LED™



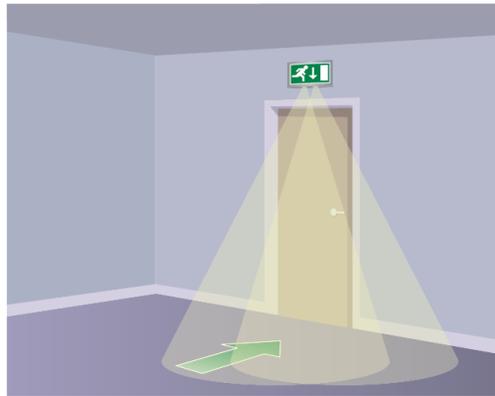
Emergency Lighting

Emergency LED Solutions

Emergency Lighting What is it ?

Emergency Lighting

Lighting equipment to provide illumination in the event of **mains power failure**



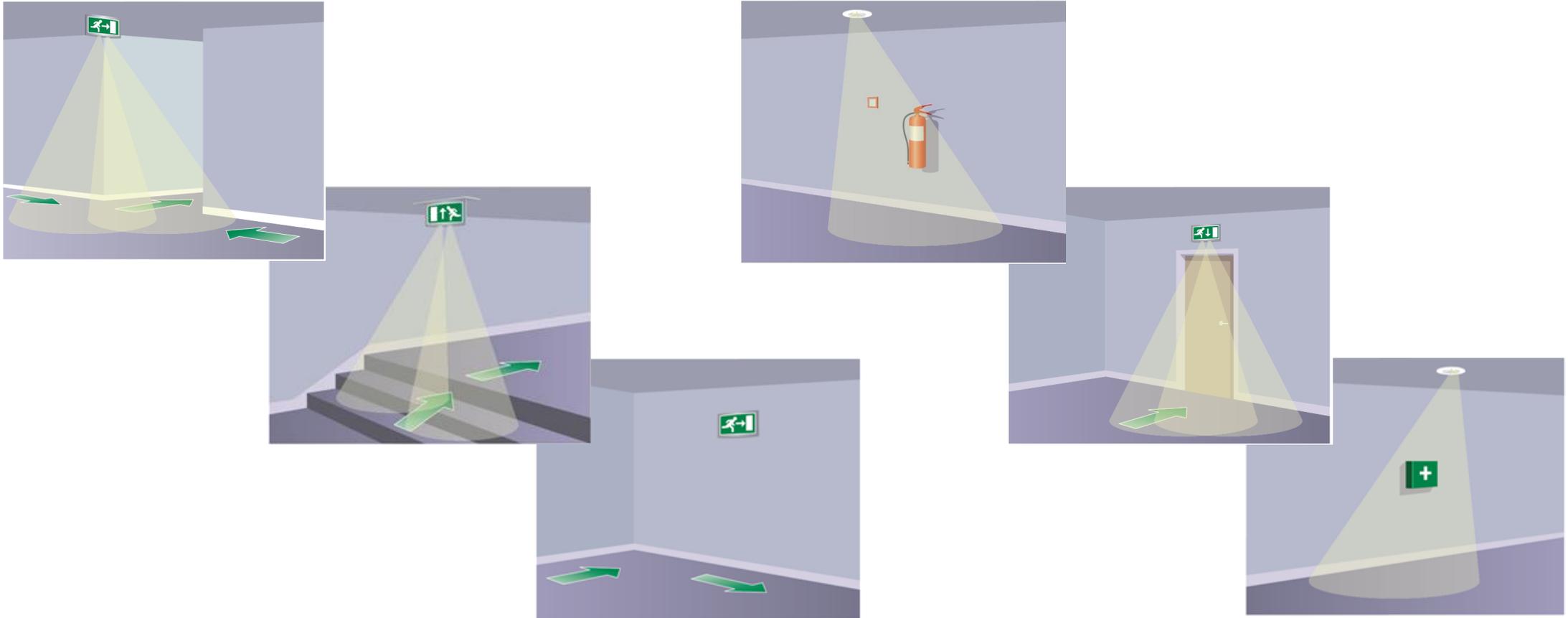
Emergency Escape Lighting

Lighting that is provided to enable Safe Exit in the event of **mains power failure**

Emergency standby lighting

Lighting that is provided to enable normal activities to continue in the event of mains power failure

Emergency Escape Lighting



Emergency Lighting

Compliance Standards, Regulations and Directives

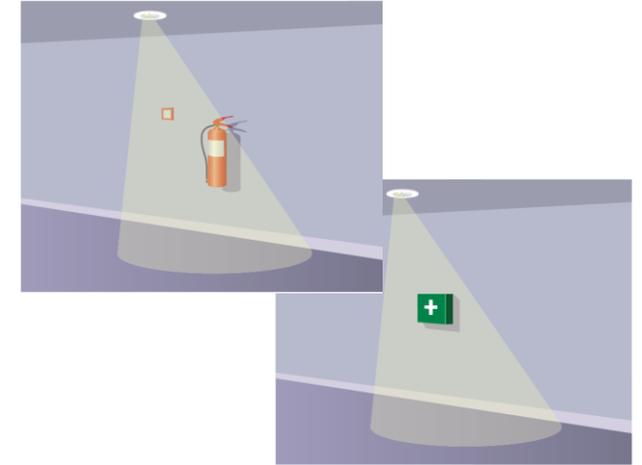
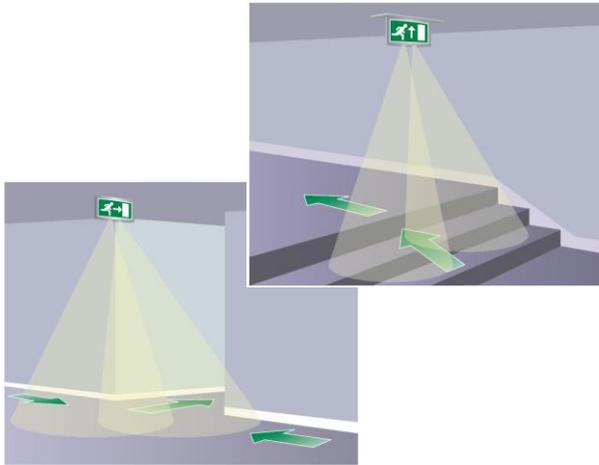
- EN.50172** *(BS.5266-1)* - Base standard - Emergency Lighting of Premises
 - Building Regulations, Installation, Plans & Designs
 - Testing, Maintenance & Records
- EN.1838** *(BS.5266-7)* - Emergency Lighting Illumination Levels
- IEC.62034** *(BS.EN.62034)* - Automatic Test Systems
- EN.60598-2-22** - Emergency Lighting Equipment and Luminaires

Emergency Escape Lighting [1]

(1) Escape Route Lighting

Emergency Lighting System
 Swift & Safe Evacuation of a Building
 Illuminating Escape Routes;

- Corridors and Stairways
- Location of Fire-Fighting Equipment
- Safety & Security Equipment



Emergency Escape Lighting [2]

(2) Large Public Buildings

Shopping malls, Museums
Exhibition Halls, etc.

Significant number of Visitors Unfamiliar with Layout



Open Area / Anti-Panic Lighting

Identification of Escape Routes, Exits & Guidance Towards them

Emergency Escape Lighting [3]

(3) High Risk Task Lighting

A Specific Type of Emergency Lighting

To Ensure the Safety of People who may be Involved in a potentially Dangerous Process or Situation

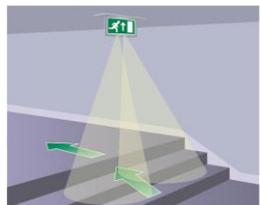
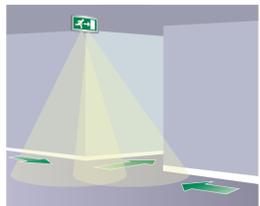
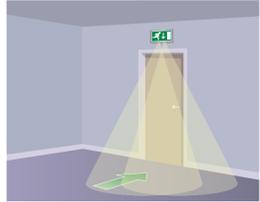
It must be Sufficient to Enable all Shut-Down Procedures to be Implemented

This type of Emergency Lighting will only apply to a Limited range of scenarios

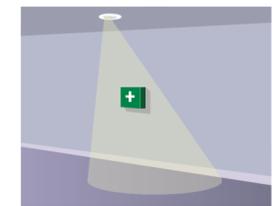
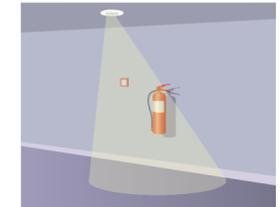
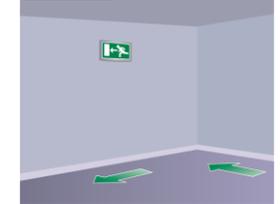


Emergency Escape Lighting

Where Necessary...

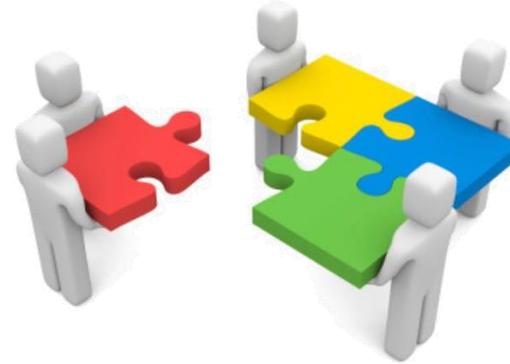


- Exit Doors & Escape Routes & Emergency Escape Signs
- Intersection of Corridors
- Stairways & Changes in Floor Level
- Lifts/Elevators and Escalators
- Windowless Rooms Exceeding 8m²
- Fire-Fighting equipment & Fire Alarm Call Points
- Equipment required to Shut-Down in an Emergency
- Areas Greater than 60m²



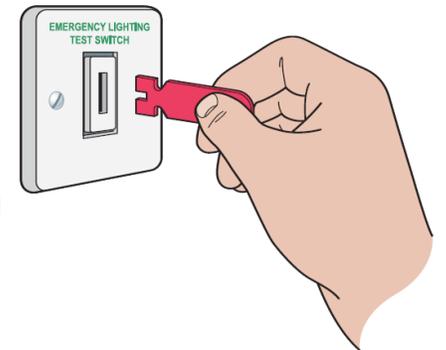
Emergency Lighting What is involved ?

- System Planning & Design
Correct positioning of Emergency Lighting Luminaires and Signs



- Installation

- Periodic Testing & Maintenance of the Emergency Lighting System



- All in compliance with EN.50172

Emergency Lighting

■ Periodic Testing & Maintenance of the Emergency Lighting System



Every Month – Function Test

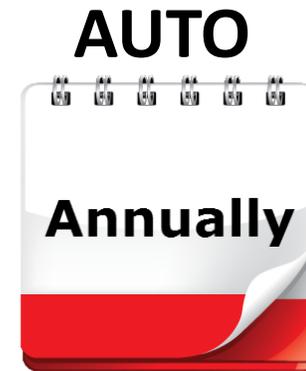
- Operate Emergency Lighting to Ensure Lights illuminate Correctly during Mains Electrical Failure
- Log/Record Date, Results and any Maintenance or Corrective Action



Every Year – Full Function and Battery Test

- Full Battery Discharge Test to ensure that the Lights are illuminated for the Full Period (Typically 3 hours)
- Test that the Batteries recharge correctly
- Log/Record Date, Results and any Maintenance or Corrective Action

AUTOMATIC SELF TEST / SELF DIAGNOSTICS



Must have 2-Colour LED Status Indicator

COMPLIANCE WITH EN.50172 & IEC.62034 - AUTOMATIC TEST SYSTEMS

Emergency Lighting Luminaires

Non-Maintained Emergency Lights

- Lighting that is used during normal conditions
- Switched On & Off during normal use
- Switches to Emergency Mode (typically a lower light level) in the event of a Mains Power Failure



Emergency Lighting Luminaires

Maintained Emergency Lights

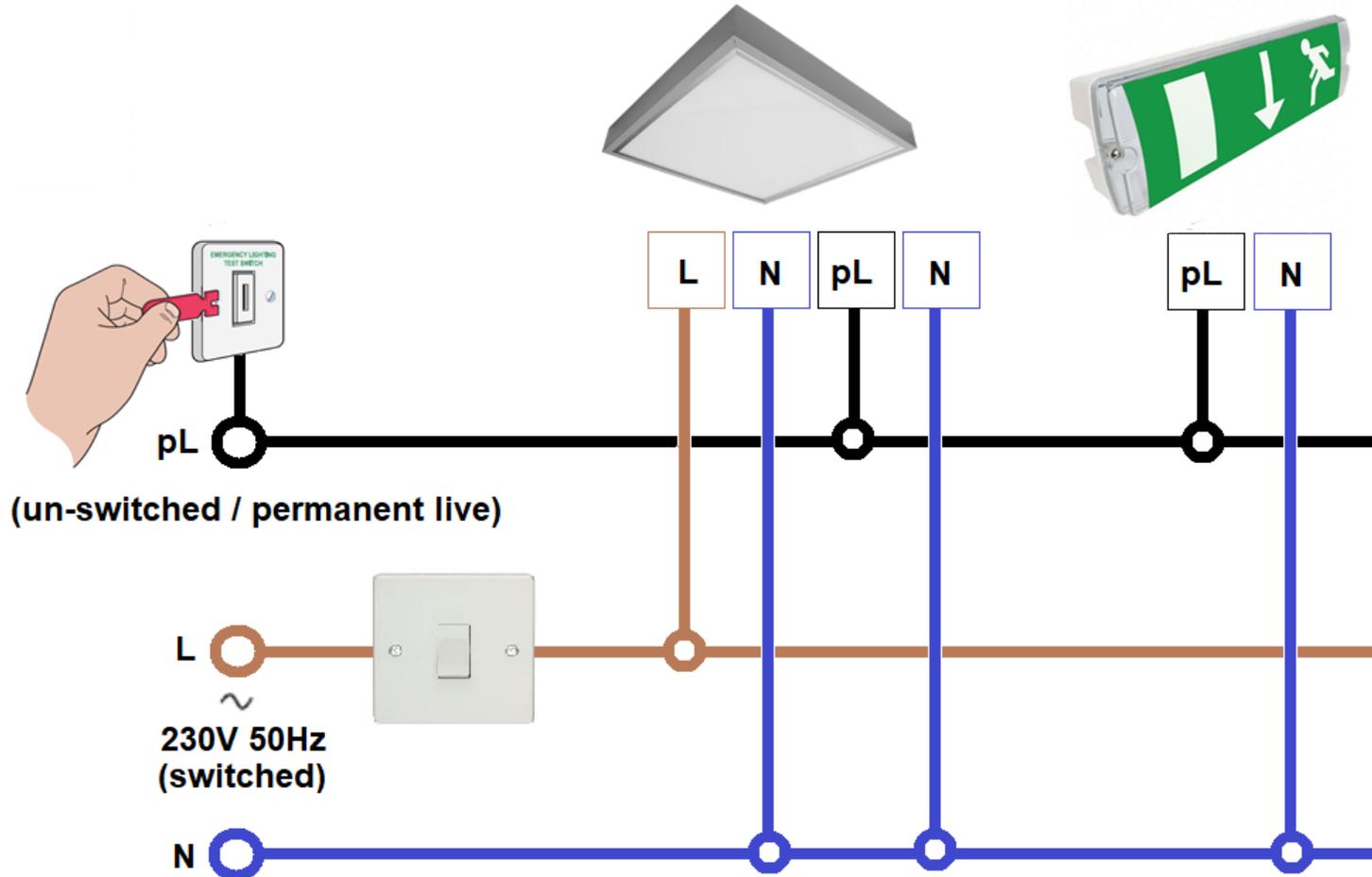
- Lighting that is used during normal conditions
- Switches over in the event of a Mains Power Failure



Installation

Non-maintained Emergency Lighting

Maintained Emergency Lighting



Emergency Lighting Components

Non-Maintained Emergency Lighting

Luminaire LED Driver



Emergency LED Driver



Battery



LED Luminaire

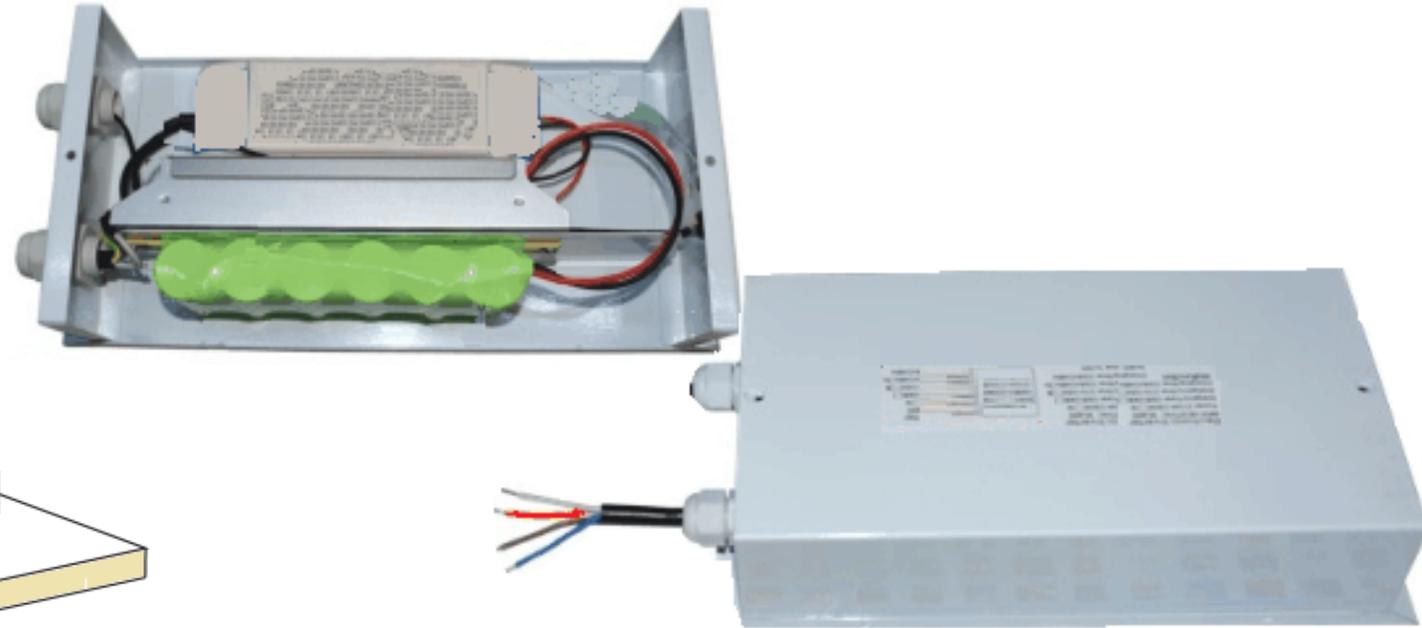
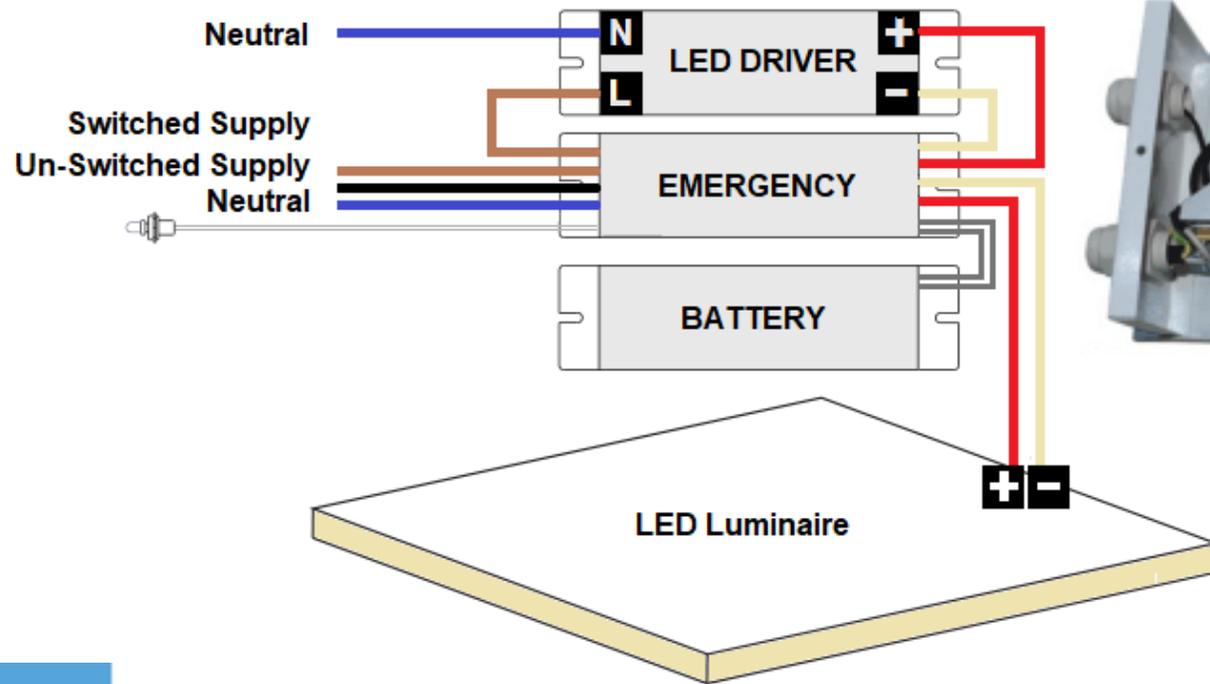


Battery Types & Comparisons

Chemistry	LiFePO4 Lithium Iron Phosphate	LiMn204 Lithium Ion Manganese Oxide	LiCoO ₂ Lithium Cobalt Oxide	NiMH Nickel Metal Hydride	NiCd Nickel Cadmium
Volumetric Energy Density	290Wh/L	320 Wh/L	50 Wh/L	260 Wh/L	150 Wh/L
Weight Energy Density	130 Wh/kg	135 Wh/kg	200 Wh/Kg	80 Wh/kg	60 Wh/kg
Safety	GOOD	ACCEPTABLE	BAD	GOOD	GOOD
Toxicity	GREEN	GREEN	TOXIC	GREEN	TOXIC
High Temperature Tolerance	GOOD	BAD	ACCEPTABLE	ACCEPTABLE	GOOD
Full Capacity Cycle Life	> 2000	~ 400	~ 500	~ 500	~ 500
Self-Discharge / Month	5%	8%	8%	35%	30%
Memory Effect	NO	NO	NO	NO	YES
Efficiency	95%	90%	90%	70%	75%

Emergency Lighting Components

Non-Maintained Emergency Lighting



Compliance Standards

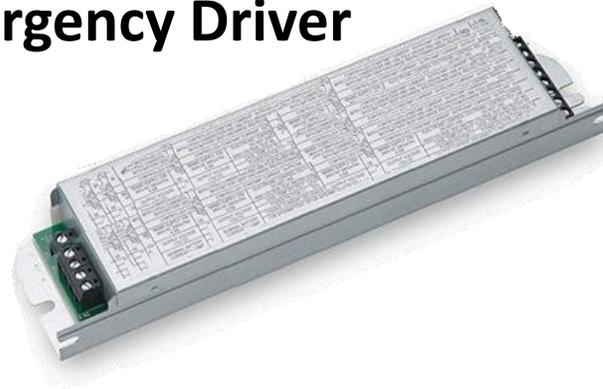
REMINDER:

EN.60598-2-22 - Emergency Lighting Equipment and Luminaires ? ? ?

CE EN
LED Driver



CE EN
Emergency Driver



CE EN
Battery



SMART LIGHTING + DESIGN.

Compliance Standards

REMINDER:

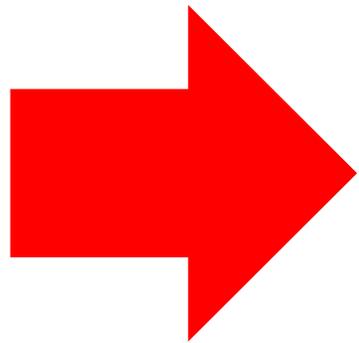
EN.60598-2-22 - Emergency Lighting Equipment and Luminaires

Emergency Lighting Solution

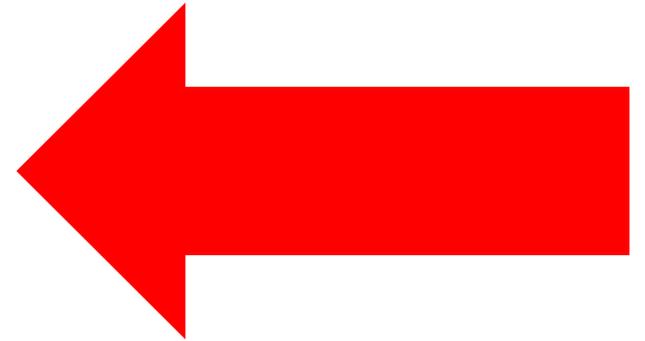


Life Saving Lighting

Emergency LED Solutions



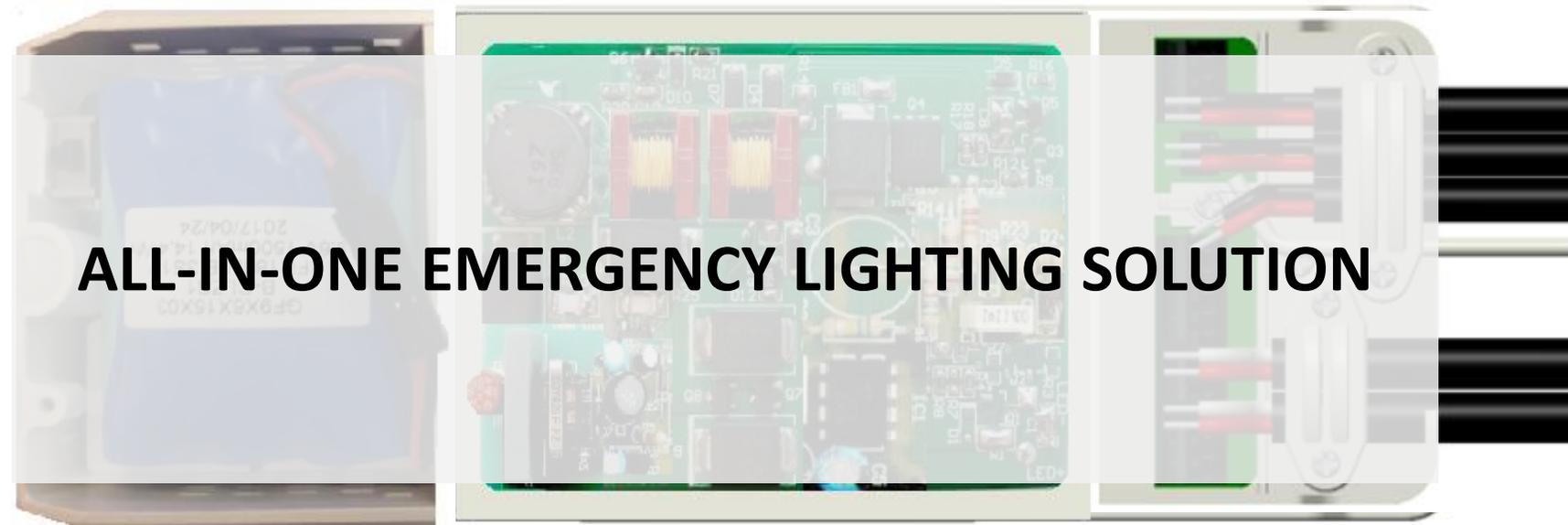
EN.60598-2-22



Emergency LED Solutions



Emergency LED Solutions



ALL-IN-ONE EMERGENCY LIGHTING SOLUTION

CE  EN.60598-2-22

Emergency Lighting

Emergency LED Solutions



Willem Melk

Region Sales Manager Europe

THANK YOU