



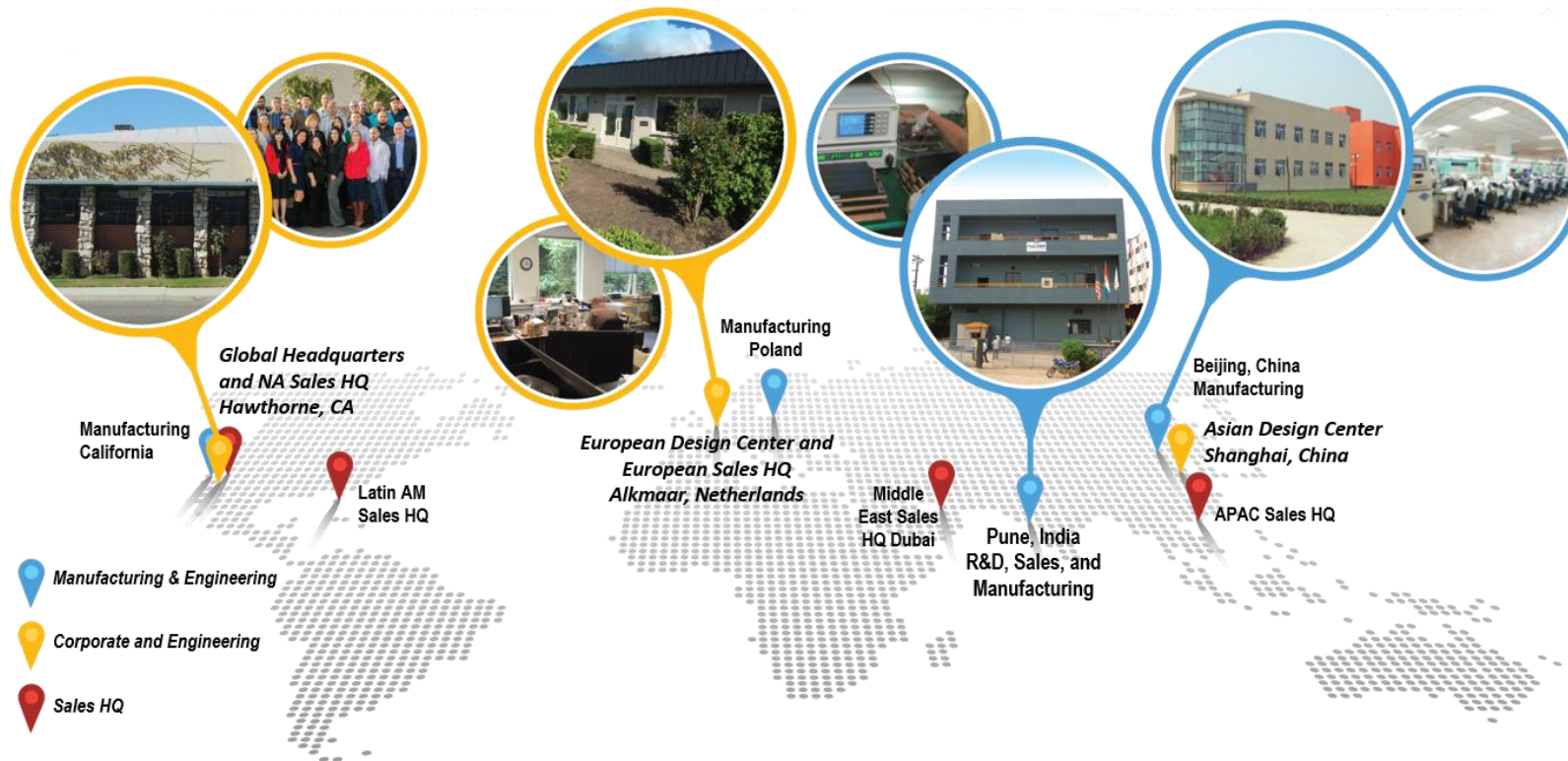
**Willem Melk**

*Region Sales Manager Europe*

**LED EVENT November 2017**



## Global Footprint





**FULHAM**  
Lighting... Global. Intelligent. Sustainable.

Europe

Fulham Company B.V. (Europe)  
Berenkoog 56  
1822 BZ Alkmaar  
Netherlands

## LED Driver solutions

**FULHAM**  
LUMO SERIES™

**FULHAM**  
WORKHORSE LED™

## LED Emergency Lighting Solutions

**FULHAM**  
HOTSPOT LED™

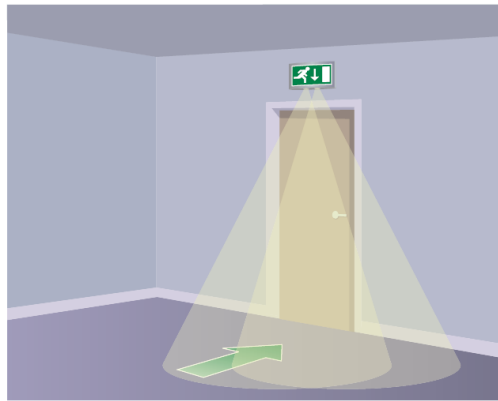


# Emergency Lighting

## Emergency LED Solutions

# Emergency Lighting What is it ?

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



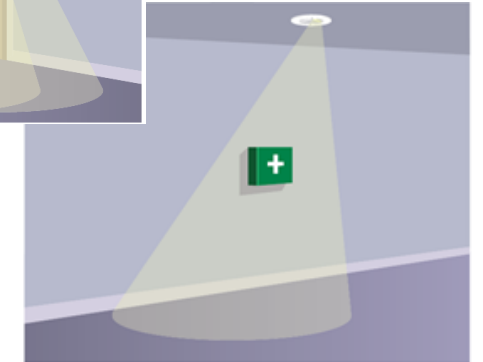
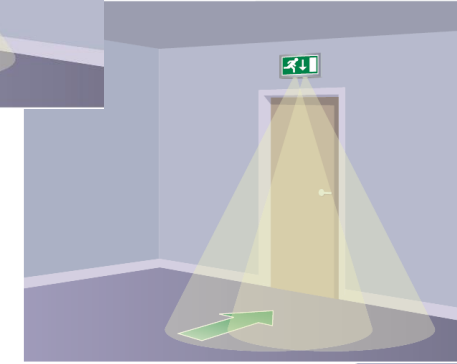
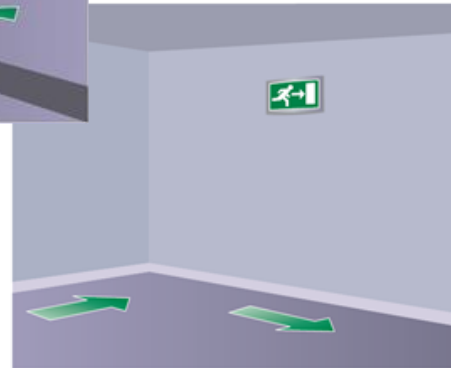
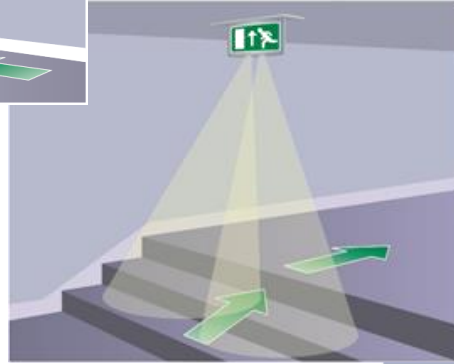
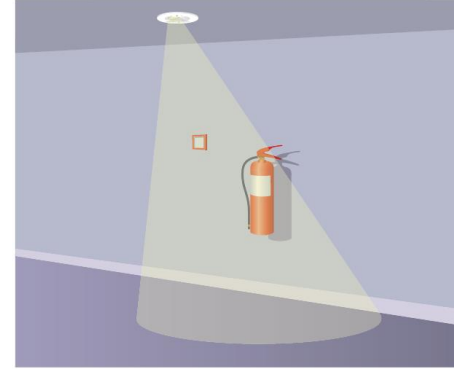
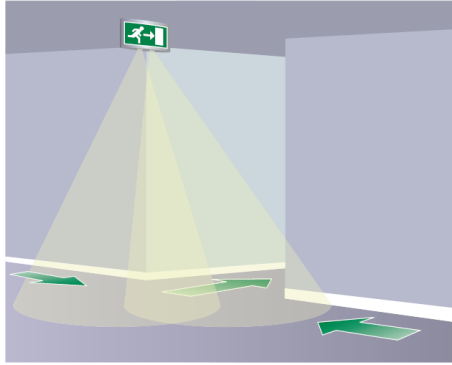
## Emergency Escape Lighting

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]

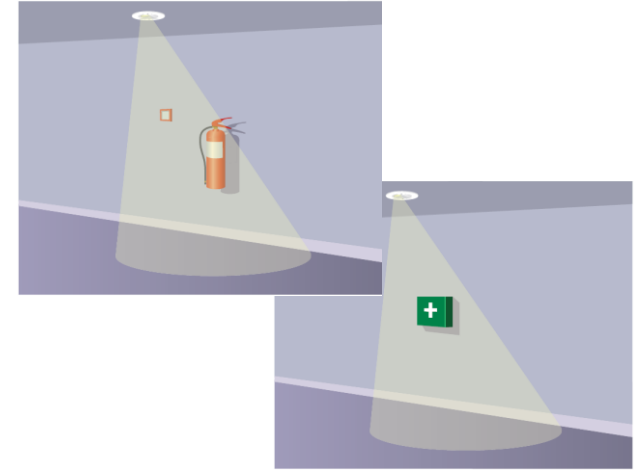
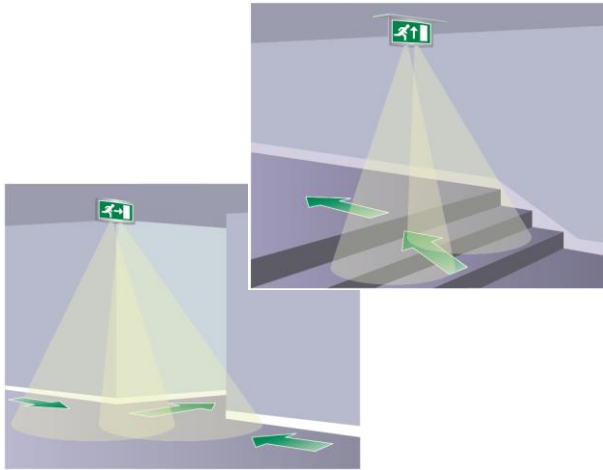
## (1) Escape Route Lighting

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

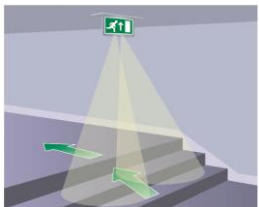
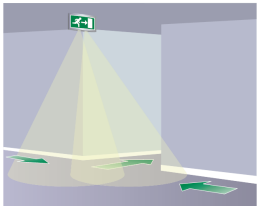
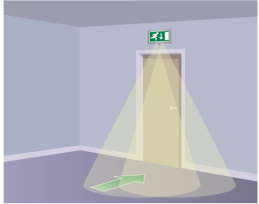
It must be Sufficient to Enable all Shut-Down Procedures to be Implemented

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

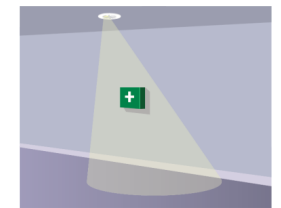
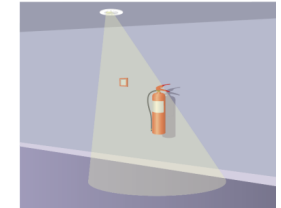
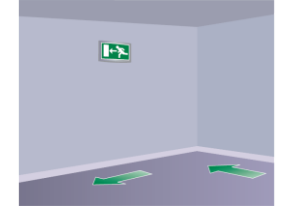


# Emergency Escape Lighting

## Where Necessary...

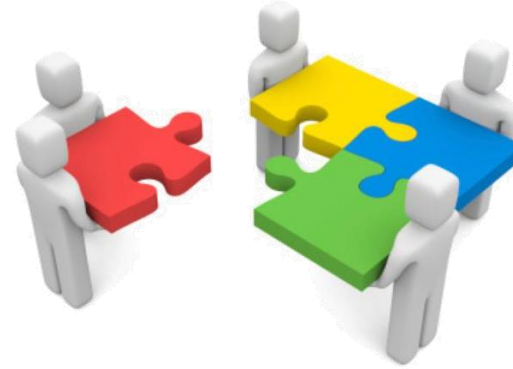


- Exit Doors & Escape Routes & Emergency Escape Signs
- Intersection of Corridors
- Stairways & Changes in Floor Level
- Lifts/Elevators and Escalators
- Windowless Rooms Exceeding 8m<sup>2</sup>
- Fire-Fighting equipment & Fire Alarm Call Points
- Equipment required to Shut-Down in an Emergency
- Areas Greater than 60m<sup>2</sup>



# Emergency Lighting What is involved ?

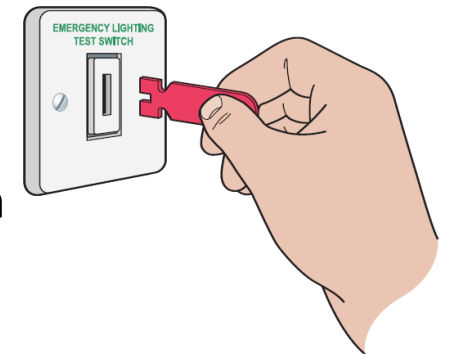
- System Planning & Design  
Correct positioning of Emergency Lighting Luminaires and Signs



- 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**

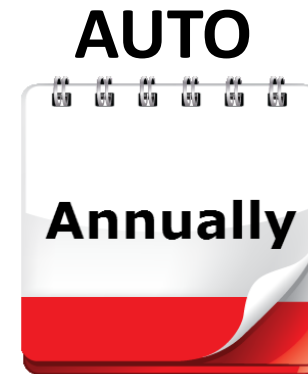
- Operate Emergency Lighting to Ensure Lights illuminate Correctly during Mains Electrical Failure
- Log/Record Date, Results and any Maintenance or Corrective Action



### **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

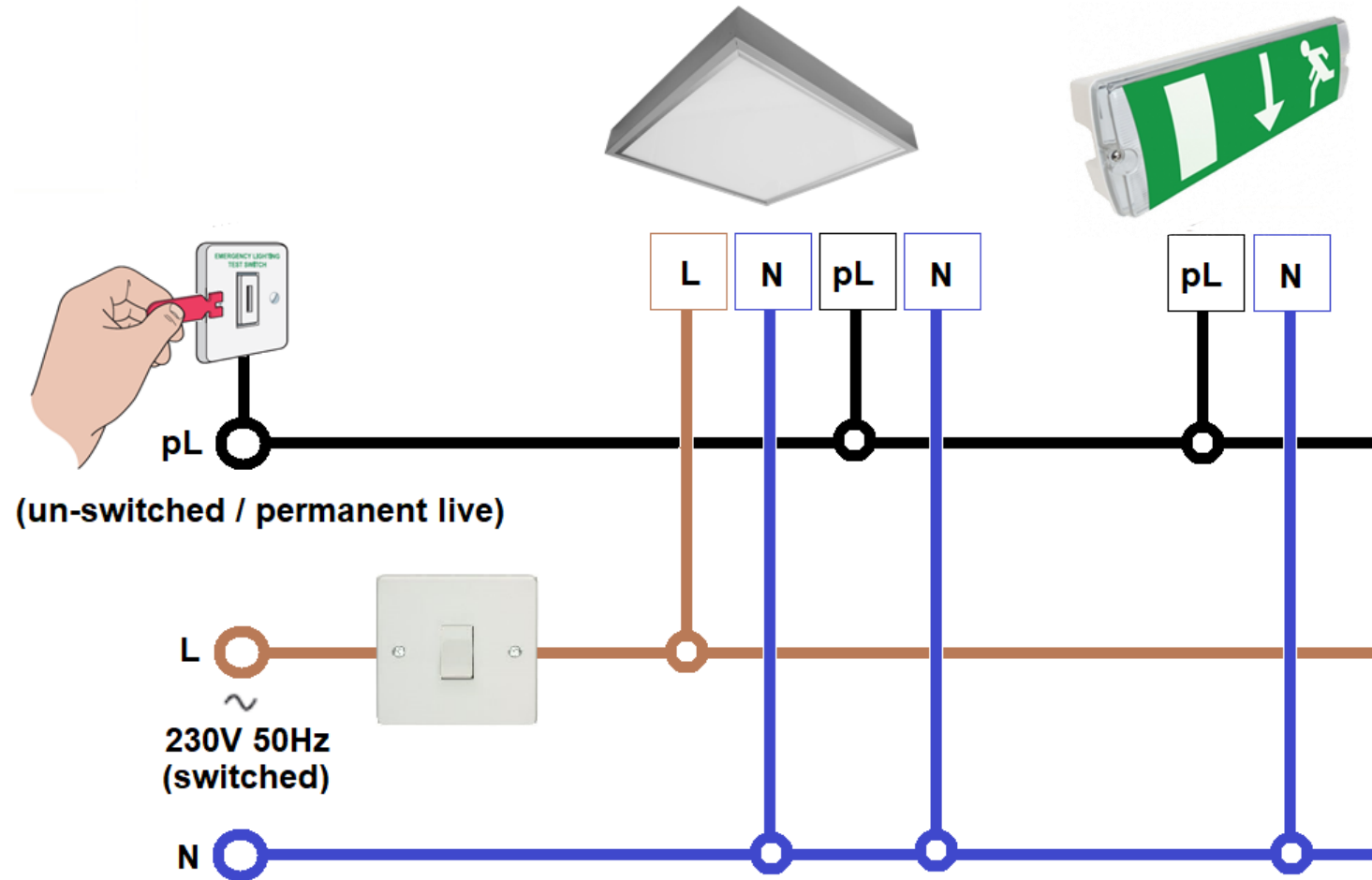
- Lighting that is used during normal conditions
- Switches over in the event of a Mains Power Failure



# Installation

Non-maintained Emergency Lighting

Maintained Emergency Lighting



# Emergency Lighting Components

## Non-Maintained Emergency Lighting

Luminaire  
LED Driver



Emergency  
LED Driver



Battery



LED  
Luminaire

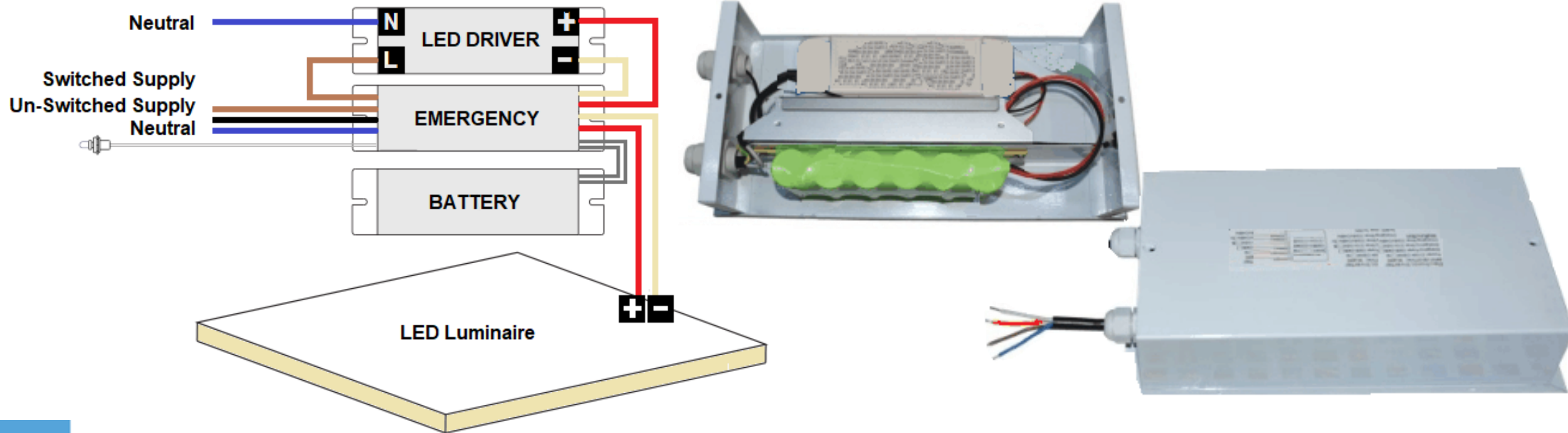


# Battery Types & Comparisons

Chemistry	LiFePO4 Lithium Iron Phosphate	LiMn204 Lithium Ion Manganese Oxide	LiCoO <sub>2</sub> 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

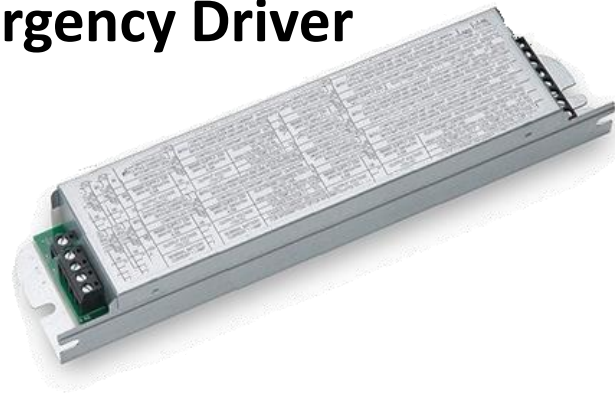
REMINDER:

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

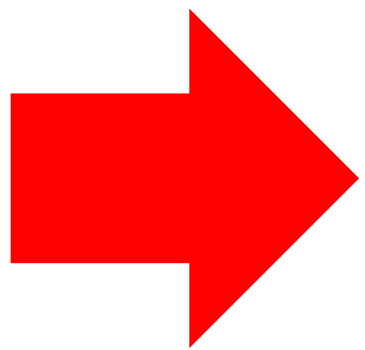
Emergency Lighting Solution



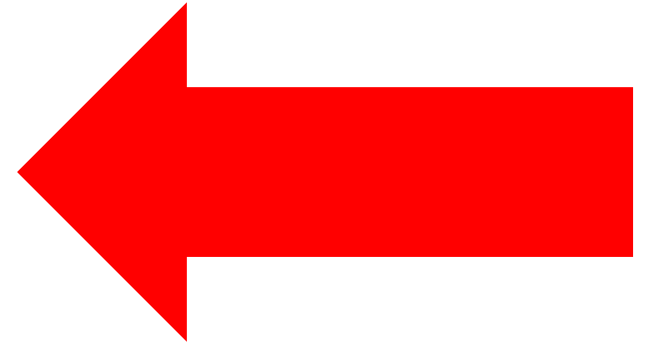


# Life Saving Lighting

## Emergency LED Solutions



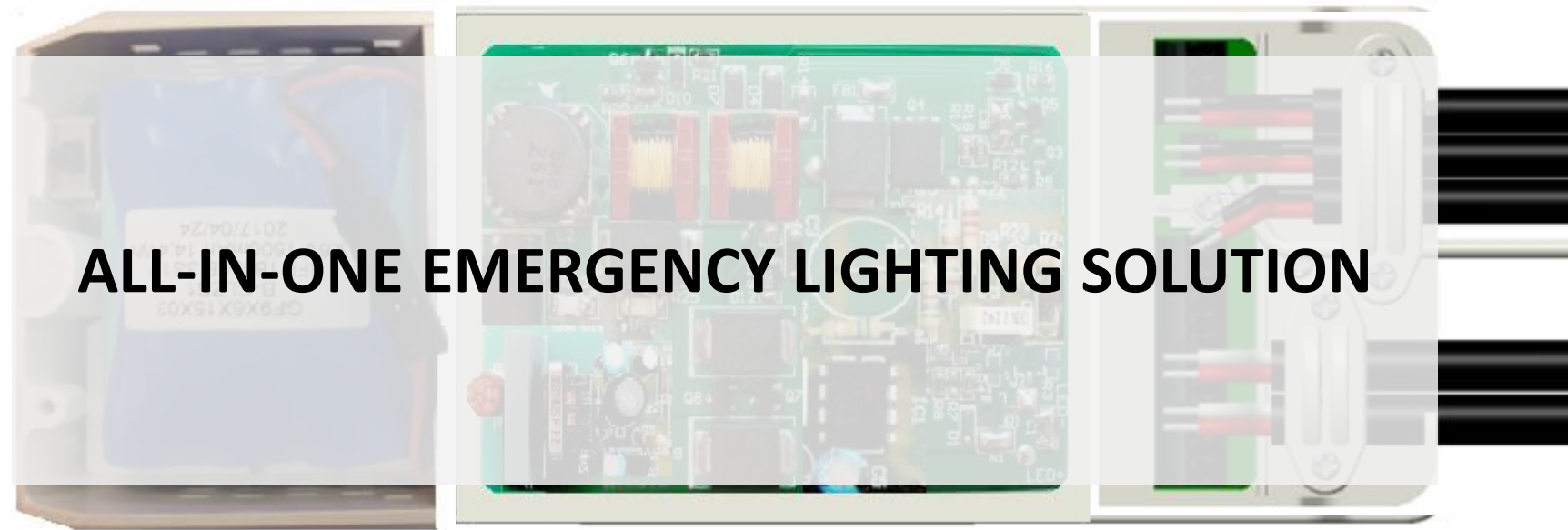
**EN.60598-2-22**




# Emergency LED Solutions



# Emergency LED Solutions



CE  **EN.60598-2-22**

# Emergency Lighting

## Emergency LED Solutions



**Willem Melk**

*Region Sales Manager Europe*

**THANK YOU**