



# Emergency Lighting

2013/2014 Edition



emergency lighting products

TECHNOLOGY WITH STYLE



# Emergency Lighting

## 2013/2014 Edition

Risk assessments must be carried out for business establishments, care homes hotels, schools, public buildings etc; and in every case there will be a requirement for adequate emergency lighting to be installed and routinely tested.

Emergency lighting is required to assist safe evacuation in the event of dangerous incidents and can ultimately save lives. It is therefore essential that the emergency lighting products used are manufactured to a high quality using the very best components.

European norms such as EN60598.2.22 set the standards, but many of the products available on the market today do not meet these vital safety and performance criteria.

The emergency lighting products shown in this catalogue are manufactured within an ISO9001 2008 registered factory and most are available with DALI or Self-Test capability (see proSeries pages 64, 78 and 84). All ELP products fully comply with the CE Marking Directive.

Our emergency lighting products offer many things including style, quality reliability, value for money and most importantly — peace of mind.



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All details and specifications shown in this document are deemed correct at time of publication. The right to modify equipment, change specifications and instructions without notice, is reserved as part of the Emergency Lighting Products Limited policy of continuous development and improvement. We endeavour to keep all our customers informed of any alterations as and when they occur.

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# Emergency Lighting

## Design Considerations

### RESPONSIBILITIES

The Regulatory Reform Order puts the legal responsibility for the provision, regular testing and on-going maintenance of emergency lighting installations firmly with the senior Directors of the businesses occupying buildings. There are various levels of legislation calling for emergency lighting in almost all building types. Legislation includes the Work Place Directive (89/654), Building Regulations, Fire Safety in Hotels (86/666) etc. and these regulations specify that 'adequate emergency lighting' must be provided. To comply with these legal responsibilities it is essential that a formal Risk Assessment is carried out by a competent person.

To ensure that the emergency lighting is 'adequate' it is normal to refer to European and National standards and codes of practice such as:

**BS5266 Parts 1-10 (includes EN1838)**

**EN50172 Emergency Escape Lighting Systems**

**BSEN60598.2.22 Emergency luminaire design and construction**

**TM 12 Basis of emergency lighting calculations**

**ICEL 1006 Emergency lighting design guide**

**ICEL1008 Emergency lighting risk assessment guide**

The various parts of BS5266 cover the most important aspects of emergency lighting design, providing guidance on the positioning of luminaires and signs, minimum construction requirements, basic performance requirements and routine testing and maintenance schedules. BS5266 is also directly referred to in the Building Regulations and therefore has a direct link to current legislation.

Therefore BS5266 is an essential tool when conducting the initial Risk assessment. Reference to the various ICEL documents such as ICEL1006 and ICEL1008 will assist the understanding of requirements and preparation of an initial risk assessment at design stage.

## KEY ISSUES

The basic intention of an emergency lighting installation is when an emergency occurs to maintain safe illuminance of high risk tasks, allow people to move safely to the escape routes, provide guidance to the most effective exit by using safety signs that are visible at every stage of the escape route and to illuminate the route to ensure rapid egress avoiding obstacles.

High risk tasks such as rotating machines, moving blades, hot surfaces, etc. must remain illuminated at 10% of the normal light level until the risk can be made safe. This light level must be achieved within 0.5 second after the normal power is lost, so the light source must be maintained or tungsten halogen.

## SYSTEM TESTING

BS5266 & EN50172 set out the minimum requirements relating to in-service testing, maintenance and records. It is a requirement that all records are available for inspection identifying the following tests:

### MONTHLY

Fail mains supply for a period sufficient to ensure each lamp is illuminated. Check starting, operation and lamp condition/illuminance levels. On restoration of supply check all system indicators are functioning.

### ANNUALLY

Carry out inspection as in 'monthly' except extend test period to the full rated duration ensuring that the full rated duration period is achieved. All tests should be carried out by a Competent Person at times of least risk ie: following any discharge the legal minimum duration of 1hour must still be achievable (until battery recharge is achieved, the occupants of the premises are vulnerable to mains failure). Therefore, special arrangements, such as night or weekend tests, should be made.

## AUTOMATIC TEST SYSTEMS

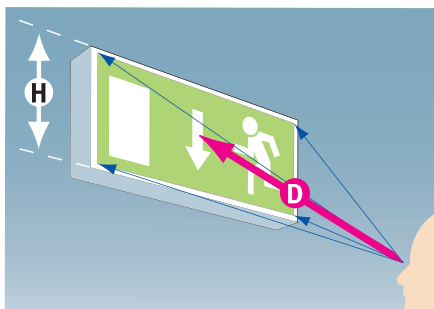
Currently there is no requirement for automatic emergency lighting test systems. However, EN 50172 proposes:-

When automatic testing devices are used, information should be recorded monthly. Full duration tests shall wherever possible be undertaken at times of low risk (building unoccupied). Automatic emergency lighting testing systems shall be designed, constructed and installed in accordance with EN62034.

# Emergency Lighting

## Design Considerations — Signs

The signs used to designate escape routes must comply with the Health and Safety (Signs & Signals) Regulations with the main intention to avoid reliance on language (ie. no text). There are two acceptable sign formats used in the UK. One is exactly as shown in the Regulations (ELP Standard offer) and the other is as shown in ISO 7010 (ELP code: /ISO). All safety signs must be internally or externally illuminated by emergency lighting equipment.



$$D = S \times H$$

**D** = Viewing Distance

**H** = Height of legend panel

**S** = a constant where:

100 is for externally illuminated

200 is for internally illuminated

If the escape route is a clearly defined path (corridor, stairs, stairwells etc.) the floor must have uniform illuminance (better than 40:1) and the minimum illuminance along the centre line of the escape route must not be below 1Lux. However for large open plan areas where there is not a defined escape route then the whole area must be lit to a minimum of 0.5Lux.

All emergency lighting systems must be regularly maintained and routinely tested.

It is not enough that a safety sign can be seen. It is essential that each sign is quickly understood and that an installation of signs quickly and clearly conveys their intention and continues to confirm the message.

### RESEARCH HAS IDENTIFIED THAT THE KEY REQUIREMENTS FOR AN ACCEPTABLE SAFETY SIGN ARE:-

#### CONSPICUITY:

The capacity of a sign to stand out or be distinguishable from its surroundings and thus be readily discovered by the eye. It is the noticeable contrast between a sign and its background, attributed to an exogenous (unplanned) or endogenous (planned) mind-set, with the display having features that attract attention to the sign. Conspicuity is considered a subjective outcome.

#### VISIBILITY:

The physical attributes of a sign and its contents that allow for detection at a given distance, although legibility may be uncertain. Visibility is considered an objective stimulus.

#### LEGIBILITY:

The physical attributes of a sign that allow for differentiation of its letters, words, numbers, or graphics and that directly relate to an observer's visual acuity. Legibility is considered an objective stimulus.

#### UNDERSTANDABILITY:

That which enables the observer to correctly perceive the information content of letters, numbers or symbols grouped together, or other meaningful relationships on the sign. Understandability is the character of a sign that leads to comprehension of its intended message, and depends on legibility and other considerations of contents and time restraints. It is considered a subjective outcome.

When considering a design for an effective escape route it is important that the exit path and any potential obstacles are well illuminated. BSEN 1838 (incorporated into BS 5266 as Part 7) sets out the requirements such as the centre line of any escape route should be lit to a minimum of 1Lux and the route should be marked with well positioned signs that clearly indicate the direction towards a final exit and on to the 'place of safety'.

The signs should be positioned so that each sign is always within a readable viewing distance and each sign shall be located so that it is visible to reconfirm the correct route at every intersection or change of direction so that evacuees can move along the escape route quickly and safely. However, in some environments (public buildings, retail areas, etc.) there may be a great number of sign boards, building furniture and visual obstacles that could confuse evacuees in an emergency situation. This is why safety signs must be easily seen and understood and, in today's cosmopolitan society, it is also essential that the meaning of signs does not rely on language.

## THE LEGAL SITUATION

Standardisation across Europe was one method of increasing a wider understanding of safety signs. Therefore, the EC Safety Signs Directive (92/58/EEC) was published and adopted as 'The Health and Safety (Signs and Signals) Regulations' in England during 1996. This piece of legislation set out simple 'Pictogram' sign formats to be used within the European Community.

The Regulations showed the intrinsic features required for emergency escape signs as being a white pictogram on a green background. The pictogram consists of the running man/arrow/door. These intrinsic features avoided the use of words in any of the escape signs and basically set out escape route guidance thereby simplifying the vast range of text signs that had previously been used.

The key intention of the EC Directive was to ensure that safety signs conveyed essential information without a reliance on language. The only problem with the EC Safety Signs Directive was that the pictograms supplied were of a different format to those shown in ISO documents and some National Standards such as BS 5499. Here are the three formats currently available for use in the UK:



In 2011, it was decided by many of the National Standards bodies to consider adoption of a single pictogram format as shown in ISO 7010.

This format was adopted by BSI in the latest edition of BS5266: 2011 which is considered to be the 'de-facto' emergency lighting standard in the UK. This will be supported by the revised edition of EN1838.

The members of the Industry Committee for Emergency Lighting (ICEL) recognised that a further change in sign format could cause additional confusion within the already confused market and therefore decided to launch the ICEL Clear Sign Campaign.

It is a legal requirement for businesses to conduct risk assessments for fire safety and evacuation and is of course vital that the emergency escape signs are of a legal format.

# Emergency Lighting

## Design Considerations — Signs

### THE CURRENT POSITION INCLUDES THE FOLLOWING KEY ISSUES

- Text only signs are not legal and should have already been replaced
- BS5499 Pictogram signs (with or without supplementary text) are legal but should only have been used when expanding an installation already incorporating similar signs
- Pictogram only signs with the same format as shown in The Health and Safety (Signs and Signals) Regulations / EC Safety Signs Directive (92/58/EEC) are legal but should not be mixed with other sign formats on any installation.
- From 2012 the new ISO 7010 Pictogram signs will also be legal but again should not be mixed with other formats on an installation.
- The latest proposals do not only identify the ISO 7010 sign format, there are also references to ISO 3864-1, ISO 3864-3 and ISO 3864-4 to provide detailed information relating to the safety colour, contrast colour and dimensions of the elements.

The images below show the different appearance of the Pictogram symbols used in these signs but the key differences between the Health and Safety (Signs and Signals) Regulations / EC Safety Signs Directive (92/58/EEC) pictograms and the ISO versions include:-

- ISO 7010 details the pictogram as the running man which should be supported by a supplementary arrow sign. There is no provision for the use of supplementary text signs to be used with an emergency exit sign.
- The only international standard which provides full guidance on the use of the arrows is ISO 16069 in which it states that 'straight on' is depicted by an arrow facing up. This is also the case in BS 5499 Pt 4 whereas the Safety Signs and Signals Regulations and other ISO standards do not state which way the arrow should be used.



ISO 7010 Go Left



ISO 7010 Go Straight ON or UP



ISO 7010 Go Right



## ICEL ADVICE under their 'Clear Sign Campaign'

Initially, for new installations, the best advice is to use internally illuminated emergency sign luminaires with the minimum number of sign formats of the ISO 7010 format to avoid confusion. Almost all escape route scenarios can be clearly indicated with the basic ISO 7010 pictogram signs conveying the messages 'straight on', 'go left', 'go right'.

However, Local Authorities and Fire Authorities can require new installations to be of either format — Signs Directive or ISO until the situation is resolved by an amendment to the Directive — So check with them to be sure you are supplying the correct format for your project. Extensions to an existing installation should be made in the same format as the original signs.

Although these factors can appear to be complicated, the principles are well known by reputable emergency lighting specialists and should be assured by specifying products supplied by ICEL member companies.

**For further information contact [info@icel.co.uk](mailto:info@icel.co.uk)**

### The technical features required for these signs are:-

- The luminance of any area of safety colour of the sign shall be at least 2 cd/m<sup>2</sup>
- The luminance ratio within either the contrast colour white or the safety colour green, shall be the minimum luminance divided by the maximum luminance and shall be greater than 0.2
- The ratio of the luminance L (contrast) to the luminance L (safety colour) shall be not less than 5:1 and not greater than 15:1
- Signs shall be illuminated to at least 50% of the required luminance within 5 seconds and full required luminance within 60 seconds.

# Emergency Lighting

## Practical Design

### DESIGN CONSIDERATIONS

Establish licensing requirements

#### Define:

- escape routes, en-route exits, and final exits (interior & exterior)
- open areas >60m<sup>2</sup>
- areas with high risk tasks (moving machinery – heat hazards etc.)
- access areas eg. lifts, escalators, plantrooms
- disabled toilets & toilets of gross area >8m<sup>2</sup>
- alarm call points, fire fighting equipment and first aid areas
- hours of occupation (sleeping risk e.g. hospital, hotel etc.)

#### Select system type:

i.e. central battery/self contained, duration etc.

#### Select appropriate light source:

(note Ra requirements)

**Note.** BS 5266 specifies that luminaires on stairs must provide direct illuminance onto the stair treads. There must be at least two luminaires within an escape compartment irrespective of size.

### ILLUMINANCE DESIGN

#### Escape routes:

max. route width = 2m (if wider, treat as multiples)  
∴ 1 lux min. along centre line plus 0.5Lux over central band covering 50% width of route.

#### Open areas:

generally greater than 60m<sup>2</sup> or as determined by Risk Assessment: 0.5 lux min (exclude 0.5m band around perimeter wall)

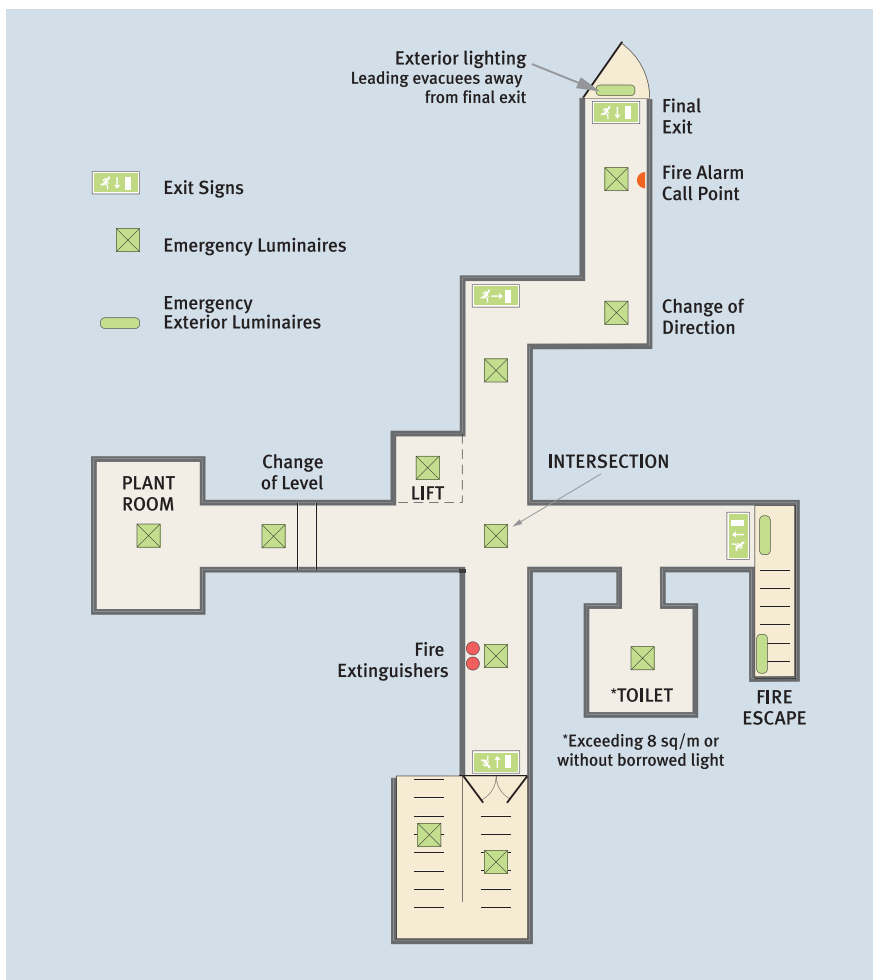
#### High risk task areas:

10% of normal illuminance (no less than 15 lux)

Notwithstanding the above, emergency luminaires shall be located at points of emphasis, such as:

- changes in direction or level (trip hazards)
- close to exit signs
- close to fire fighting equipment
- outside final exits

**Note.** 'Close' means within 2metres



# Amenity Round

## IP65 Luminaires



The **AR** range offers mains and emergency lighting from a robust luminaire with a white or polycarbonate base and clear opal polycarbonate diffusers sealed to IP65.

The luminaires are supplied with three screws securing the diffuser, removal of which provides access to the removable geartray retaining the control gear and 28Watt 2D lamp.

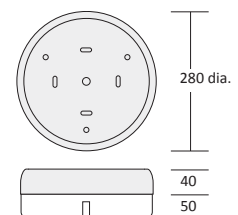
### OPERATION

The **AR** luminaires are available with mains only, or switchable Maintained operation. All emergency versions provide 3 hour duration as standard from integral high temperature Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

The luminaires fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	28Watt 2D
Supply Current	Maintained: 150mA
Cable Entry	20mm conduit in back
Geartray	White painted steel fixed by three screws
IP Rating	IP65 ta25
Dimensions	280mm (dia.) x 90mm (H)



## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	1 x 28Watt 2D	
Construction	Polycarbonate base and Polycarbonate diffuser	
Light output (mains)	1800lm	1800lm
Light output (emergency)	288lm	—
Battery	4.8V 4Ah NiCd	—
Charge current	250mA nominal	—
Recharge period	24hours (14hrs for 1hr duration)	—
Input voltage	230Volt +/- 10% ~ 50Hz	
Power	39VA (max.)	30VA
Weight	2.7kg	2.4kg

Mounting height Hm (m)	CLEAR	
	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape
2.0	11.9	8.2
2.5	12.9	8.6
3.0	13.7	8.9
4.0	14.2	9.0

## ORDER CODES

AR/28/230

AR/28/M3

## Description

Mains only 28Watt 2D white polycarbonate with clear diffuser

Maintained 28Watt 2D white polycarbonate with clear diffuser

# LED Amenity Round

## IP65 Luminaires



The **LED Amenity Round** luminaire provides an attractive but robust solution for providing lighting to walkways, tunnels, storage areas, car parks etc. The enclosure is sealed to IP65 and houses a geartray with HF electronic driver and multi-circuit LED board. The Polycarbonate lens and halo-effect side band provide excellent photometric performance (1250 luminaire lumens). The robust Cast Aluminium and Polycarbonate enclosure is vandal resistant and provides protection to IP65. Suitable for ambient temperatures of up to 35°C (25°C for emergency versions) the units are ideal for interior and exterior environments.

### OPERATION

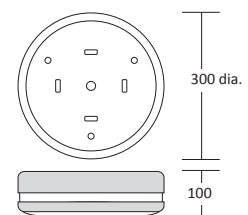
The **LED Amenity Round** luminaires are available with mains only, or switchable Maintained operation. All emergency versions provide 3 hour duration as standard from integral high temperature Nickel Cadmium batteries.

Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

The luminaires fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Light Source	Multi-circuit LED
Supply Current	Maintained: 90mA
Cable Entry	20mm holes in back
Geartray	White PCB fixed by two screws
IP Rating	IP65 ta25
Dimensions	300mm (dia.) x 100mm (H)
Maximum Weight	2.7kg





### SPECIFICATION

OPERATION	Maintained	Mains only
Light source	Surface mount white LEDs	
Construction	Aluminium base and Polycarbonate opal diffuser	
Light output (mains)	20W LEDs — 1250 Lumens	20W LEDs — 1250 Lumens
Light output (emergency)	20W LEDs — 200 Lumens	—
Battery	20W LEDs — 6.0V 3.8Ah	—
Charge current	20W LEDs — 200mA	—
Recharge period	<24hours	—
Input voltage	230Volt ~ 50Hz	
Supply Power	20W LEDs — 28 Watts (max.)	20W LEDs — 20 Watts

Mounting height Hm (m)	LEDs	
	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape
2.0	10.7	7.5
2.5	11.3	7.6
3.0	12.3	7.8
4.0	12.5	8.2



### ORDER CODES

### Description

<b>15605/P</b>	20Watt LED (mains only)
<b>15605/M3</b>	20Watt LED (Maintained 3hour emergency)

#### OPTIONS:

<b>/15606/P</b>	As above but with tri-guard
<b>/15606/M3</b>	As above but with tri-guard
<b>/DALI</b>	DALI or Self-Test emergency operation

# Amenity Square

## IP65 Luminaires



The **AS** range offers mains and emergency lighting from a robust luminaire with a white polycarbonate base and clear opal polycarbonate diffuser sealed to IP65.

The luminaires are supplied with four screws securing the diffuser, removal of which provides access to the removable geartray retaining the control gear and 28Watt 2D lamp.

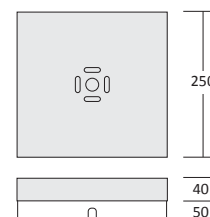
### OPERATION

The **AS** luminaires are available with mains only, or switchable Maintained operation. All emergency versions provide 3 hour duration as standard from integral high temperature Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

The luminaires fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	28Watt 2D
Supply Current	Maintained: 150mA
Cable Entry	20mm conduit in back
Geartray	White painted steel fixed by four screws
IP Rating	IP65 ta25
Dimensions	250mm (square) x 90mm (H)





## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	1 x 28Watt 2D	
Construction	Polycarbonate base and Polycarbonate diffuser	
Light output (mains)	1800lm	1800lm
Light output (emergency)	288lm	—
Battery	4.8V 4Ah NiCd	—
Charge current	250mA nominal	—
Recharge period	24hours (14hrs for 1hr duration)	—
Input voltage	230Volt +/- 10% ~ 50Hz	
Power	39VA (max.)	30VA
Weight	2.7kg	2.4kg

Mounting height Hm (m)	CLEAR	
	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape
2.0	10.8	7.6
2.5	11.9	7.8
3.0	12.6	8.1
4.0	13.0	8.2

## ORDER CODES

## Description

AS/28/230

Mains only 28Watt 2D white polycarbonate with clear diffuser

AS/28/M3

Maintained 28Watt 2D white polycarbonate with clear diffuser

# LED Amenity Square

## IP65 Luminaires



The **LED Amenity Square** luminaire provides an attractive but robust solution for providing lighting to walkways, tunnels, storage areas, car parks etc.

The enclosure is sealed to IP65 and houses a geartray with HF electronic driver and multi-circuit LED board.

The Polycarbonate lens and halo-effect, side band provide excellent photometric performance (1250 luminaire lumens).

The robust Cast Aluminium and Polycarbonate enclosure is vandal resistant and provides protection to IP65.

Suitable for ambient temperatures of up to 35°C (25°C for emergency versions) the units are ideal for interior and exterior environments.

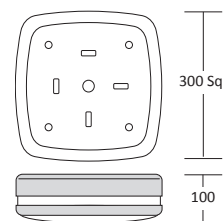
### OPERATION

The **LED Amenity Square** luminaires are available with mains only, Non-maintained or switchable Maintained operation. All emergency versions provide 3 hour duration as standard from integral high temperature Nickel Cadmium batteries.

Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply. The luminaires fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Light Source	Multi-circuit LED
Supply Current	Maintained: 90mA Non-maintained: 35mA
Cable Entry	20mm holes in back
Geartray	White PCB fixed by two screws
IP Rating	IP65 ta25
Dimensions	300mm (square) x 100mm (H)
Maximum Weight	2.7kg



## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	Surface mount white LEDs	
Construction	Aluminium base and Polycarbonate opal diffuser	
Light output (mains)	20W LEDs — 1250 Lumens	20W LEDs — 1250 Lumens
Light output (emergency)	20W LEDs — 200 Lumens	—
Battery	20W LEDs — 6.0V 3.8Ah	—
Charge current	20W LEDs — 200mA	—
Recharge period	<24hours	—
Input voltage	230Volt ~ 50Hz	
Supply Power	20W LEDs — 28 Watts (max.)	20W LEDs — 20 Watts

Mounting height Hm (m)	LEDs	
	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape
2.0	10.7	7.5
2.5	11.3	7.6
3.0	12.3	7.8
4.0	12.5	8.2



### ORDER CODES

**15607/P**  
**15607/M3**

### Description

20Watt LED (mains only)  
20Watt LED (Maintained 3hour emergency)

OPTIONS:

**/DALI**

DALI or Self-Test emergency operation

# LED Amenity TLR

## IP65 Luminaires



The **LED Amenity TLR** luminaire provides an attractive but robust solution for providing lighting to walkways, tunnels, storage areas, car parks etc.

The enclosure is sealed to IP65 and houses a geartray with HF electronic driver and multi-circuit LED board.

The Polycarbonate lens and halo-effect, side band provide excellent photometric performance (1250 luminaire lumens). The robust Cast Aluminium and Polycarbonate enclosure is vandal resistant and provides protection to IP65.

Suitable for ambient temperatures of up to 35°C (25°C for emergency versions) the units are ideal for interior and exterior environments.

### OPERATION

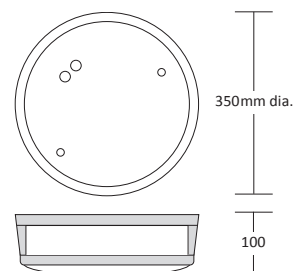
The **TLR** luminaires are available with mains only, or switchable Maintained operation. All emergency versions provide 3 hour duration as standard from integral high temperature Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

The luminaires fully comply to the requirements of EN60598.2.22



### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Light Source	Multi-circuit LED
Supply Current	Maintained: 90mA
Cable Entry	20mm holes in back
Geartray	White PCB fixed by two screws
IP Rating	IP65 ta25
Dimensions	350mm (dia.) x 100mm (H)
Maximum Weight	2.8kg



## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	Surface mount white LEDs	
Construction	Aluminium base and Polycarbonate opal diffuser	
Light output (mains)	20W LEDs — 1250 Lumens	20W LEDs — 1250 Lumens
Light output (emergency)	20W LEDs — 200 Lumens	—
Battery	20W LEDs — 6.0V 3.8Ah	—
Charge current	20W LEDs — 200mA	—
Recharge period	<24hours	—
Input voltage	230Volt ~ 50Hz	
Supply Power	20W LEDs — 28 Watts (max.)	20W LEDs — 20 Watts

Mounting height Hm (m)	LEDs	
	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape
2.0	10.7	7.5
2.5	11.3	7.6
3.0	12.3	7.8
4.0	12.5	8.2

### ORDER CODES

### Description

**15604/P**

20Watt LED (mains only)

**15604/M3**

20Watt LED (Maintained 3hour emergency)

OPTIONS:

**/DALI**

DALI or Self-Test emergency operation

# Aviator

## Bulkhead and Exit Sign Luminaires



The **Aviator** range offers a choice of cost effective IP65 rated polycarbonate or pressure cast aluminium bases with polycarbonate fresnel lens or opal diffusers. The luminaires provide 100 lumen output as standard and the fresnel lens creates opportunities to minimise the number of luminaires required within an installation. The opal polycarbonate diffuser is ideal for use with the range of 100mm high, self adhesive safety signs.

**Aviator** luminaires can be surface mounted or semi-recessed.

### OPERATION

The **Aviator** luminaires are available with Maintained, Non-maintained or mains only operation.

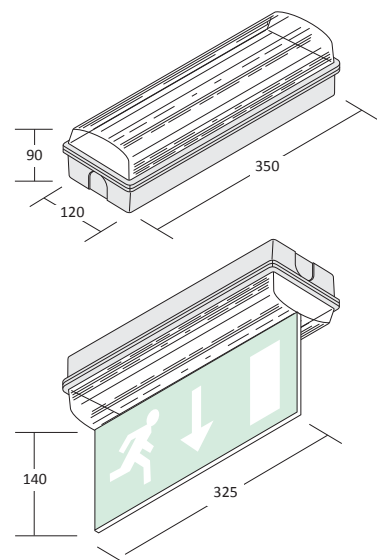
All emergency versions provide 3 hour duration as standard from integral high temp. Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

Accessories such as self-adhesive pictogram legend panels, semi-recessing bezels and tamper-proof screws are available to complete the range.

The luminaires fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	8Watt T5
Supply Current	Mains: 60mA Maintained: 90mA Non-maintained: 40mA
Cable Entry	20mm drilling points (polycarbonate) threaded 20mm entries (aluminium)
Geartray	Hinged white painted steel
IP Rating	IP65 ta25





## SPECIFICATION

OPERATION	Non-Maintained	Maintained	Mains only
Light source	1 x 8Watt T5		
Construction	Polycarbonate base and clear fresnel lens		
<i>Standard</i>	Polycarbonate base and clear fresnel lens		
<i>/HD Heavy Duty</i>	Aluminium base and clear fresnel lens		
Light output (mains)			
<i>Standard</i>	—	100lm	400lm
<i>/HD Heavy Duty</i>	—	100lm	400lm
Light output (emergency)			
<i>Standard</i>	100lm	100lm	—
<i>/HD Heavy Duty</i>	100lm	100lm	—
Battery			
<i>Standard</i>	2.4V 4Ah NiCd		—
<i>/HD Heavy Duty</i>	2.4V 4Ah NiCd		—
Charge current	250mA nominal		—
Recharge period	24hours (14hrs for 1hr duration)		—
Input voltage	230Volt +/- 10% ~ 50Hz		
Power	9VA (max.)	21VA (max.)	13VA
Weight	1.5kg	1.8kg	1.5kg

Mounting height Hm (m)	Trans. to wall	Trans. to trans.	Axial to trans.	Axial to axial	Axial to wall	
2.5	2.0	6.9	6.1	3.6	1.1	1 Lux min.
4.0	1.5	5.7	5.3	3.4	0.5	at centre
2.5	3.4	9.7	8.0	5.2	1.7	0.5 Lux min.
4.0	2.5	9.5	7.8	5.0	1.0	(open)

## ORDER CODES

ORDER CODES	Description
<b>AV/NM3</b>	Non-Maintained 8 watt polycarbonate bulkhead with fresnel lens
<b>AV/M3</b>	Maintained 8 watt polycarbonate bulkhead with fresnel lens
<b>AV/230</b>	Mains only 8 watt polycarbonate bulkhead with fresnel lens

### /HD VERSIONS

<b>AV/M3/HD</b>	Maintained 8 watt aluminium bulkhead with PC fresnel lens
<b>AV/230/HD</b>	Mains only 8 watt aluminium bulkhead with PC fresnel lens

ACCESSORIES: **/OP** Opal Diffuser; **/RB** Semi-Recessing Bezel; **/WG** Wire Guard;

BLADE EXIT OPTIONS:		
<b>AV/BLD/ECAR</b>	EC format	— Arrow Right/Left
<b>AV/BLD/ECAD</b>	EC format	— Arrow Down
<b>AV/BLD/ISOAR</b>	ISO format	— Arrow Right
<b>AV/BLD/ISOAU</b>	ISO format	— Arrow Up

SELF-ADHESIVE SIGN KITS:		
<b>AV/LEG/KIT/EC</b>	EC format	Self-adhesive kit
<b>AV/LEG/ISOAR</b>	ISO format	Self-adhesive — Arrow Right
<b>AV/LEG/ISOAL</b>	ISO format	Self-adhesive — Arrow Left
<b>AV/LEG/ISOAU</b>	ISO format	Self-adhesive — Arrow Up

# Axiom

## Bulkhead and Exit Sign Luminaires



The **Axiom** LED bulkhead utilises an IP65 rated polycarbonate base and fresnel lens housing 16 high output white LEDs and constant current maintained drive circuit. The luminaire provides 90 lumens and the lens generates a wide intensity distribution ideal for providing good illuminance on the escape route. The polycarbonate lens can be fitted with 100mm high, self-adhesive safety signs.

A deep (150mm) opal diffuser is also available to provide double sided signage if required.

### OPERATION

The **Axiom** LED bulkhead luminaires are available for normal mains lighting or with integral Maintained emergency lighting control gear (non-maintained operation achieved by excluding a switched live supply).

The 16 white LEDs provide 90 Lumens and 'M3' versions also offer 3 hour emergency lighting duration from integral Nickel Cadmium batteries. As with all ELP maintained luminaires the **AX/M3** maintained units can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

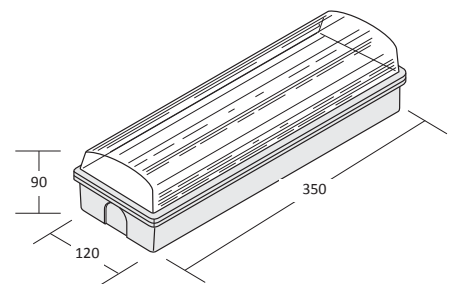
The benefits of modern white LEDs are well documented. These devices are very energy efficient and offer very long life (typically 50,000hours +). In addition LEDs will operate at low temperatures (no cold starting problems) and do not create high temperatures therefore improving the life of the internal batteries and making the bulkhead suitable for use in cold stores etc.

**Axiom AX** bulkheads are ideally suited for a wide range of emergency lighting applications offering 4-5 years of maintenance free operation.

The luminaires fully comply with the requirements of EN60598.2.22 and their low energy consumption assists with compliance with Part L requirements.

### FEATURES

- Long life LEDs (50,000 hours)
- Maintenance free operation (battery replacement after 5 years)
- Cool operation (minimal temperature rise caused by LEDs)
- Suitable for use in cold stores (ambient temperatures down to -20°C)
- Low energy (<10Watts operation)
- High light output (120 Lumens; equivalent to 8Watt T5 bulkheads)







## GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Light source	16 x white LEDs
Supply Current	Maintained: 40mA (9.0VA max) mains only: 25mA (5.0VA max)
Cable Entry	20mm drilling points (polycarbonate)
Geartray	Hinged white painted steel
IP Rating	IP65
Dimensions	350mm (L) x 120mm (W) x 90mm (H)
Weight	1.5 kg (1.6 kg with DDS)

Mounting height Hm (m)	Trans. to wall	Trans. to trans.	Axial to trans.	Axial to axial	Axial to wall	
2.5	1.6	5.9	4.3	3.0	1.0	1 Lux min.
4.0	1.1	4.7	3.6	2.6	0.4	at centre
2.5	2.6	8.7	7.2	4.7	1.2	0.5 Lux min.
4.0	1.9	8.5	7.0	4.5	0.6	(open)

## ORDER CODES

ORDER CODES	Description
<b>AX/M3</b>	Maintained 16 x white LEDs, polycarbonate bulkhead with fresnel lens
<b>AX/230</b>	Mains only 16 x white LEDs, polycarbonate bulkhead with fresnel lens
OPTIONS:	<b>/DALI</b> DALI or Self-Test emergency operation <b>/DDS</b> Deep Double Sided exit sign diffuser <b>/EBAX/RB/KIT</b> Semi-recessing bezel kit
LEGENDS:	<b>/DDS/ECAR</b> EC format — Arrow Right/Left (for DDS) <b>/DDS/ECAD</b> EC format — Arrow Down (for DDS) <b>/DDS/ISOAR</b> ISO format — Arrow Right/Left (for DDS) <b>/DDS/ISOAU</b> ISO format — Arrow Up (for DDS)
SELF-ADHESIVE SIGN KITS:	<b>/AX/LEG/KIT/EC</b> EC format Self-adhesive kit <b>/AX/LEG/ISOAR</b> ISO format Self-adhesive kit — Arrow Right <b>/AX/LEG/ISOAL</b> ISO format Self-adhesive kit — Arrow Left <b>/AX/LEG/ISOAU</b> ISO format Self-adhesive kit — Arrow Up

# Brilas

## IP65 LED Bulkhead



Neat and compact, the **Brilas** LED bulkhead utilises an IP65 rated polycarbonate base and lens specifically designed to maximise the distribution from the enclosed 16 high output white LEDs and appropriate drive circuit.

The **Brilas** is available with a 'hanging blade' exit sign legend panel or self-adhesive legend kits.

### OPERATION

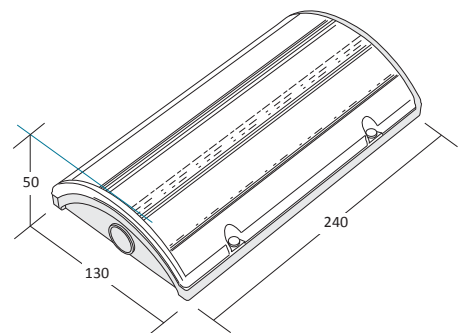
The attractively designed **Brilas** bulkhead offers 120 Lumen LED output with a distribution to ensure maximum spacing between luminaires.

The **Brilas** luminaires are available with mains only or Maintained emergency operation. All emergency versions provide 3 hour duration from integral high temperature Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

The luminaires fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	16 x 4200K white LED (CRI>80)
Supply Current	Maintained: 38mA (9VA max.) Mains only: 22mA (5VA)
Cable Entry	Drilling points in both ends and back plate
Geartray	Hinged white polycarbonate
Construction	White polycarbonate base / clear lens
IP Rating	IP65 ta25
Dimensions	240mm (L) x 130mm (W) x 50mm (H)
Weight	1.4 kg





BR/M3/BLADE/ISOAR



BR/M3/BLADE/ISOAU

### Emergency spacings (White base/Brilas lens)

Mounting height Hm (m)	Trans. to wall	Trans. to trans.	Axial to trans.	Axial to axial	Axial to wall	
2.5	3.0	7.8	7.2	6.8	2.0	1 Lux min. at centre
4.0	2.4	8.2	7.6	6.2	1.4	
2.5	5.1	9.8	9.2	6.5	2.6	0.5 Lux min. (open)
4.0	4.4	10.0	9.8	6.0	2.2	

### ORDER CODES

ORDER CODES	Description
<b>BR/M3</b>	Maintained emergency LED bulkhead luminaire
<b>BR/230</b>	Mains only LED bulkhead luminaire
OPTIONS:	
<b>/DALI</b>	DALI or Self-Test emergency operation
<b>/BLADE</b>	As above but with hanging blade Exit panel
LEGENDS:	
<b>/ECAR</b>	EC format — Arrow Right/Left (for BLADE)
<b>/ECAD</b>	EC format — Arrow Down (for BLADE)
<b>/ISOAR</b>	ISO format — Arrow Right/Left (for BLADE)
<b>/ISOAU</b>	ISO format — Arrow Up (for BLADE)
SELF-ADHESIVE SIGN KITS:	
<b>/BR/LEG/KIT/EC</b>	EC format Self-adhesive kit
<b>/BR/LEG/ISOAR</b>	ISO format Self-adhesive kit — Arrow Right
<b>/BR/LEG/ISOAL</b>	ISO format Self-adhesive kit — Arrow Left
<b>/BR/LEG/ISOAU</b>	ISO format Self-adhesive kit — Arrow Up

# Elegance

## Decorative 2D Fluorescent or LED IP65 Luminaires



The **Elegance** range offers mains and emergency lighting from a stylish luminaire with a white polycarbonate base and opal polycarbonate diffuser sealed to IP65. The luminaires are supplied with a unique lever release for the diffuser which provides access to the control gear and light sources which are mounted on a removable geartray.

### OPERATION

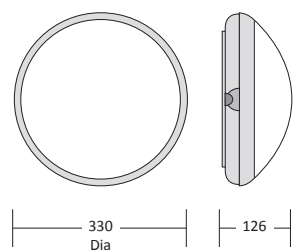
The **Elegance** fluorescent or LED luminaires are available with mains only or switchable Maintained operation. (Non-maintained operation can be achieved by excluding the normal switched mains live supply). All emergency versions provide 3 hour duration as standard from integral high temp. Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

The luminaires fully comply to the requirements of EN60598.2.22

Options for **Elegance** LED versions include integral Self-Test/DALI via an intelligent **LDpro** kit (See page 80) and provision for an integral **PS-RS02** Microwave Motion Detector (See page 90).

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz	
Lamp	28Watt 2D	24 x white LEDs
Supply Current	Maintained: 160mA Non-maintained: 40mA	Maintained: 90mA Non-maintained: 35mA
Cable Entry	20mm conduit in side 13 mm hole in back	
Geartray	White painted steel fixed by two screws	
IP Rating	IP65 ta25	
Dimensions	330mm (Dia) x 126mm (H)	





**/MW**  
PS-RS02 Microwave Motion Detector  
*(Optional)*



## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	28Watt 2D or Surface mount white LEDs	
Construction	Polycarbonate base and opal diffuser	
Light output (mains)	28W 2D — 1800 Lumens 17W LEDs — 1150 Lumens	28W 2D — 1800 Lumens 17W LEDs — 1150 Lumens
Light output (emergency)	28W 2D — 288 Lumens 17W LEDs — 200 Lumens	—
Battery	28W 2D — 4.8V 4.0Ah 17W LEDs — 6.0V 3.8Ah	—
Charge current	28W 2D — 250mA 17W LEDs — 200mA	—
Recharge period	<24hours	—
Input voltage	230Volt ~ 50Hz	
Supply Power	28W 2D — 39 Watts (max.) 17W LEDs — 20 Watts (max.)	28W 2D — 30 Watts 17W LEDs — 17 Watts

Mounting height Hm (m)	28Watt 2D		24 x LEDs	
	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape
2.0	10.8	7.6	10.7	7.5
2.5	11.9	7.8	11.3	7.6
3.0	12.6	8.1	12.3	7.8
4.0	13.0	8.2	12.5	8.2

## ORDER CODES

**EL/28/230/WH**

## Description

Mains only 28 watt 2D; white polycarbonate with opal diffuser

**EL/28/M3/WH**

Maintained 28 watt 2D; white polycarbonate with opal diffuser

**EL/LED/230/WH**

Mains only 17 watt LED; white polycarbonate with opal diffuser

**EL/LED/M3/WH**

Maintained 17 watt LED; white polycarbonate with opal diffuser

OPTIONS: *(for LED versions only)*

**/MW**

Micro-Wave presence detector

**/DALI**

DALI or Self-Test emergency operation

# Excel

## Circular LED Luminaires



**XL330/230** Brushed silver base

The **Excel** range offers decorative surface mounted circular luminaires in two diameters and incorporating high output white LEDs providing ultra-long-life and low energy. The **Excel** luminaires utilise an aluminium base (White as standard) and twist-on PMMA diffuser.

### OPERATION

The **Excel** luminaires are available in two diameters 330mm with 1100Lumen LED output or 400mm with 1450Lumen LED output. The Excel luminaires are available with mains only or Maintained emergency operation and can be supplied with integral micro-wave presence detection.

All emergency versions provide 3 hour duration from integral high temperature Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

The luminaires fully comply with the requirements of EN60598.2.22 and meet with current Part L energy efficiency targets offering over 60 Lumens/Watt.

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz		PF >0.92
Light source	White LED (CRI >75)		
Rated Power	<b>/330</b> – Mains: 18W	M3: 23W	
	<b>/400</b> – Mains: 24W	M3: 27.5W	
Cable Entry	20mm hole (centre of back plate)		
Construction	Standard — White base / opal diffuser		
IP Rating	IP20 ta25		
Dimensions	<b>/330</b> – 326mm (dia.) x 98mm (H)		
	<b>/400</b> – 395mm (dia.) x 113mm (H)		



**XL400/230** Standard base



## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	Surface Mount White LEDs	
Construction	Aluminium base / PMMA diffuser	
Light output (mains)	/330 — 1100 Lumens /400 — 1450 Lumens	/330 — 1100 Lumens /400 — 1450 Lumens
Light output (emergency)	/330 — 200 Lumens /400 — 215 Lumens	—
Battery	/330 — 6.0V 2.0Ah /400 — 6.0V 3.8Ah	—
Charge current	/330 — 100mA /400 — 200mA	—
Recharge period	<24 hours	—
Input voltage	230V ~ 50Hz	
Supply power	/330 — 23 Watts /400 — 27.5 Watts	/330 - 18 Watts /400 — 24 Watts
Weight	2.6 kg	2.1 kg

**Note:** The emergency gear inside the XL300/M3 reduces the mains light output by approx. 15% due to absorption.

## EMERGENCY SPACINGS

	Mounting height Hm (m)	Fitting to Wall	Fitting to Fitting	
/330 Small luminaire in emergency mode	2.5	2.2	5.3	1 Lux min at centre
	4.0	2.0	5.8	
	2.5	3.8	7.9	0.5 Lux min (open)
	4.0	4.0	8.0	
/440 Large luminaire in emergency mode	2.5	2.9	6.1	1 Lux min at centre
	4.0	2.7	5.9	
	2.5	4.1	8.7	0.5 Lux min (open)
	4.0	4.4	9.8	

## ORDER CODES

## Description

<b>XL330/M3/WH</b>	330mm diameter Maintained emergency LED luminaire
<b>XL330/230/WH</b>	330mm diameter Mains only LED luminaire
<b>XL400/M3/WH</b>	400mm diameter Maintained emergency LED luminaire
<b>XL400/230/WH</b>	400mm diameter Mains only LED luminaire

## OPTIONS:

Suffix: <b>/SL</b>	Brushed silver body
<b>/MW</b>	Microwave presence detector <i>(Not available with XL330/M3/WH)</i>
<b>/DALI</b>	DALI or Self-Test emergency operation

# Finesse

## Slim Bulkhead Luminaires



### LED (FID) or 8Watt Fluorescent (FIF)

The **Finesse** range offers an attractive, slim, IP rated enclosure suitable for semi-flush or surface mounting with a choice of white LED or conventional 8Watt fluorescent light sources. The **Finesse** luminaires utilise a polycarbonate body and lens with linear prisms providing wide intensity distribution.

The **Finesse** luminaires are available with an alternative lens which has a slot retaining an injection moulded legend blade.



FIFE M3/FI/BLD/ECAR

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz	
Light Source	/D — 16 x white LEDs	/F — 8Watt T5
Supply Current	/D — M3: 45mA max.	Mains: 20 mA
	/F — M3: 120mA max.	Mains: 55 mA
Cable Entry	20mm drilling points (polycarbonate)	
Geartray	Hinged white painted steel	
IP Rating	IP54 ta25	
Dimensions	375mm (L) x 160mm (W) x 75mm (H)	

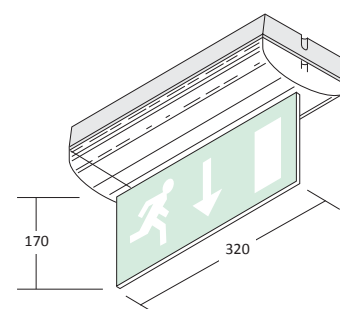
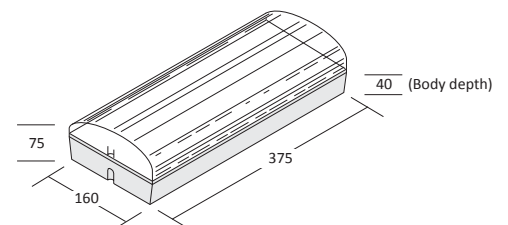
### OPERATION

The **Finesse** luminaires are available with LED or fluorescent light sources with Maintained or mains only operation. (Non-maintained operation is available by excluding a switched live supply).

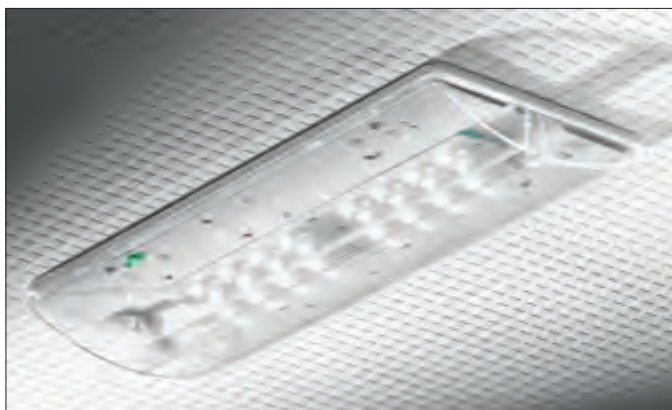
All emergency versions provide 3 hour duration as standard from integral high temp. Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

**Finesse** luminaires can be semi-recessed mounted using the FI/RB kit. The hanging blade exit legend panels require a different lens to the plain version which reduces the IP rating to IP21.

The luminaires fully comply with the requirements of EN60598.2.22 and the low energy consumption assists with compliance with Part L Requirements.







FIDE M3/FI/BLD/ISOAR

## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	/D — 16 x white LEDs /F — 1 x 8Watt T5	
Construction	Polycarbonate base and clear fresnel lens	
Light output (mains)	/D — 90lm /F — 100lm	/D — 90lm /F — 300lm
Light output (emergency)	/D — 90lm /F — 100lm	—
Battery	/D — 3.6V 1.8Ah NiCd /F — 2.4V 4Ah NiCd	—
Charge current	/D — 100mA nominal /F — 250mA nominal	—
Recharge period	24hours (14hrs for 1hr duration)	
Input voltage	230Volt +/- 10% ~ 50Hz	
Power (maximum)	/D — 10VA /F — 21VA	/D — 7VA /F — 11VA
Weight	1.5 kg	1.4 kg

## EMERGENCY SPACINGS

Mounting height Hm (m)	Trans. to wall	Trans. to trans.	Axial to trans.	Axial to axial	Axial to wall	
2.5	2.0	6.9	6.1	3.6	1.1	1 Lux min.
4.0	1.5	5.7	5.3	3.4	0.5	at centre
2.5	3.4	9.7	8.0	5.2	1.7	0.5 Lux min.
4.0	2.5	9.5	7.8	5.0	1.0	(open)

## ORDER CODES

## Description

<b>FID/M3</b>	Maintained LED slim polycarbonate bulkhead with lens
<b>FID/230</b>	Mains only LED slim polycarbonate bulkhead with lens
<b>FIF/M3</b>	Maintained 8 watt slim polycarbonate bulkhead with lens
<b>FIF/230</b>	Mains only 8 watt slim polycarbonate bulkhead with lens
<b>FIDE/M3</b>	FID/M3 with integral lens/double sided injection moulded legend blade
<b>FIDE/230</b>	FID/230 with integral lens/double sided injection moulded legend blade
<b>FIFE/M3</b>	FIF/M3 with integral lens/double sided injection moulded legend blade
<b>FIFE/230</b>	FIF/230 with integral lens/double sided injection moulded legend blade

### BLADE EXIT OPTIONS:

<b>FI/BLD/ECAR</b>	EC Format	— Arrow Right/Left
<b>FI/BLD/ECAD</b>	EC Format	— Arrow Down
<b>FI/BLD/ISOAR</b>	ISO Format	— Arrow Right/Left
<b>FI/BLD/ISOAU</b>	ISO Format	— Arrow Up

### SELF-ADHESIVE SIGN KITS:

<b>FI/LEG/KIT/EC</b>	EC Format	Self-adhesive kit
<b>FI/LEG/ISOAR</b>	ISO Format	Self-adhesive Arrow Right
<b>FI/LEG/ISOAL</b>	ISO Format	Self-adhesive Arrow Left
<b>FI/BLD/ISOAU</b>	ISO Format	Self-adhesive Arrow Up

### OPTIONS:

<b>/DALI</b>	DALI or Self-Test emergency operation	(For LED versions only)
<b>/FI/RB/KIT</b>	Semi-recessing kit	

# Flush 8

## Recessed Luminaires



The **Flush 8** recessed luminaires provide a very discreet and attractive emergency lighting installation and may also be recessed into the wall to provide flush exit signs. The luminaires are manufactured in galvanised steel with the prismatic polycarbonate panel retained by an epoxy coated trim. (White as standard).

The **Flush 8** luminaires offer 100 lumen output and the alternative opal polycarbonate panel is ideal for use with the range of 100mm high, self-adhesive safety signs.

### OPERATION

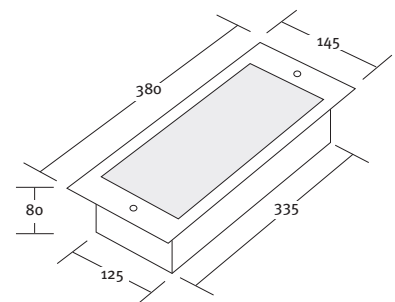
The **Flush 8** luminaires are available with Maintained, Non-maintained or mains only operation. All emergency versions provide 3 hour duration as standard from integral high temp. Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

Available options include self-adhesive pictogram legends and opal polycarbonate diffuser panels.

The luminaires fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	8Watt T5
Supply Current	Maintained: 90mA Non-maintained: 40mA
Cable Entry	20mm holes in ends and back
Geartray	White painted steel on keyhole slots
IP Rating	IP20 ta25
Dimensions	Cut out 340mm (L) x 128mm (W)





## SPECIFICATION

OPERATION	Non-Maintained	Maintained	Mains only
Light source	1 x 8Watt T5		
Construction	Steel back box and polycarbonate diffuser		
Light output (mains)	—	100lm	400lm
Light output (emergency)	100lm	100lm	—
Battery	2.4V 4Ah NiCd		—
Charge current	250mA nominal		—
Recharge period	24hours (14hrs for 1hr duration)		—
Input voltage	230Volt +/- 10% ~ 50Hz		
Power	9VA (max.)	21VA (max.)	13VA
Weight	2.3 kg	2.4 kg	2.1 kg

## EMERGENCY SPACINGS

Mounting height Hm (m)	Trans. to wall	Trans. to trans.	Axial to trans.	Axial to axial	Axial to wall	
2.5	1.8	5.1	5.0	4.7	1.7	1 Lux min.
4.0	2.4	4.7	4.6	4.3	2.0	at centre
2.5	2.6	7.2	6.6	6.2	2.2	0.5 Lux min.
4.0	1.9	7.4	6.7	6.4	1.7	(open)

## ORDER CODES

ORDER CODES	Description
<b>FL/NM3/WH</b>	Non-Maintained 8 watt recessed luminaire with prismatic panel
<b>FL/M3/WH</b>	Maintained 8 watt recessed luminaire with prismatic panel
<b>FL/230/WH</b>	Mains only 8 watt recessed luminaire with prismatic panel

OPTIONS: **/BR** Brass ceiling plate; **/CH** Chrome ceiling plate; **/OP** Opal Diffuser

SELF-ADHESIVE SIGN KITS:	<b>/FL/LEG/KIT/EC</b>	EC format Self-adhesive kit
	<b>/FL/LEG/ISOAR</b>	ISO format Self-adhesive kit — Arrow Right
	<b>/FL/LEG/ISOAL</b>	ISO format Self-adhesive kit — Arrow Left
	<b>/FL/LEG/ISOAU</b>	ISO format Self-adhesive kit — Arrow Up

See P36 for FLUSH Exit luminaire range.

# Flush Exit

## Recessed Luminaires



The **Flush Exit** recessed hanging blade exit sign luminaires offer a discreet and attractive solution to providing emergency escape signage within any installation. The luminaires are manufactured in galvanised steel with the plastic hanging blade legend panel retained by a decorative ceiling trim plate. (White as standard).

The **Flush Exit** luminaires utilise integral 100 lumen output emergency lighting equipment providing even luminance across the 34metre viewing distance legends.

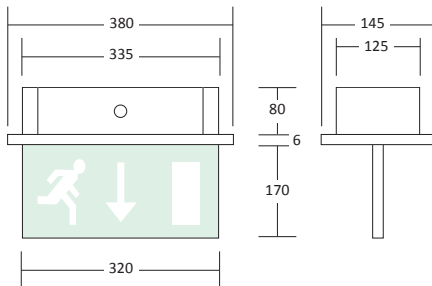
### OPERATION

The **Flush Exit** luminaires are available with Maintained or Non-maintained operation. All emergency versions provide 3 hour duration as standard from integral high temp. Nickel Cadmium batteries. Sign legends suitable for 34metre viewing distances in accordance with BS5266. The arrow down Safety Signs Regulations format of screen printed pictogram legends is supplied as standard.

The luminaires fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	8Watt T5
Supply Current	Maintained: 90mA Non-maintained: 40mA
Cable Entry	20mm in ends and back
Geartray	White painted steel on keyhole slots
IP Rating	IP20 ta25
Dimensions	Cut out 340mm (L) x 128mm (W)





EC Signs Directive format



ISO sign format

## SPECIFICATION

OPERATION	Non-Maintained	Maintained
Light source	1 x 8Watt T5	
Construction	Steel back box and screen printed legend	
Light output (mains)	—	100lm
Light output (emergency)	100lm	100lm
Battery	2.4V 4Ah NiCd	
Charge current	250mA nominal	
Recharge period	24hours (14hrs for 1hr duration)	
Input voltage	230Volt +/- 10% ~ 50Hz	
Power	9VA (max.)	21VA (max.)
Weight	2.5 kg	2.6 kg

## ORDER CODES Description

<b>FE/NM3/WH</b>	Non-Maintained 8 watt recessed luminaire with screen printed legend panel
<b>FE/M3/WH</b>	Maintained 8 watt recessed luminaire with screen printed legend panel
<b>FE/230/WH</b>	Mains only 8 watt recessed luminaire with screen printed legend panel

OPTIONS: /BR Brass ceiling panel; /CH Silver ceiling panel

LEGENDS: /ECAR EC format — Arrow Right  
 /ECAL EC format — Arrow Left  
 /ECAD EC format — Arrow Down  
 /ISOAR ISO format — Arrow Right/Left  
 /ISOAL ISO format — Arrow Right/Left  
 /ISOAU ISO format — Arrow up

# Fusion

## LED and 8W T5 Luminaires/Exit Signs



FFD/M3

### LED (/D) or 8Watt Fluorescent (/F)

The **Fusion** range offers an attractive flush mounting luminaire with an optional lens that accommodates a hanging blade exit legend. The luminaires utilize a polycarbonate body and lens and are available with white LED or 8Watt fluorescent light sources.

Ease of installation is assured due to the adjustable arms that swing out and clamp down onto the supporting surface.

The optional exit panel is moulded with a wedge shape to improve the luminance distribution over the legends. The plain lens seals the enclosure to IP65.

### OPERATION

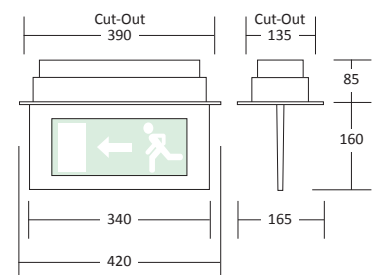
The **Fusion** luminaires are available with 16 x white LEDs or a single 8Watt fluorescent light source with Maintained or mains only operation. (Non-maintained operation is available by excluding a switched live supply). All emergency versions provide 3 hour duration as standard from integral high temp. Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

The hanging blade exit legend panels require a different lens to the plain version and must be ordered as a complete unit.

The luminaires fully comply with the requirements of EN60598.2.22 and the low energy consumption assists with compliance with Part L requirements.

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz	
Light Source	/D — 16 x white LEDs /F — 8Watt T5	
Supply Current	/D — M3: 45mA max.	Mains: 20mA
	/F — M3: 120mA max.	Mains: 55mA
Cable Entry	20mm drilling points (polycarbonate)	
Geartray	Removable white painted steel	
IP Rating	<b>Flush:</b> IP65 ta25	<b>Exit:</b> IP20 ta25





FEF/M3/ECAD



FEF/M3/ISOAU

## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	/D — 16 x white LEDs	/F — 1 x 8Watt T5
Construction	Polycarbonate base and clear fresnel lens	
Light output (mains)	/D — 90lm /F — 100lm	/D — 90lm /F — 400lm
Light output (emergency)	/D — 90lm /F — 100lm	—
Battery	/D — 3.6V 1.8Ah NiCd	/F — 2.4V 4Ah NiCd
Charge current	/D — 100mA nominal	/F — 250mA nominal
Recharge period	24hours (14hrs for 1hr duration)	
Input voltage	230Volt +/- 10% ~ 50Hz	
Power (maximum)	/D — 10VA /F — 21VA	/D — 7VA /F — 11VA
Weight	1.8 kg	1.7 kg

## SPACING TABLE FOR 100LUMEN OUTPUT

Mounting height Hm (m)	Trans. to wall	Trans. to trans.	Axial to trans.	Axial to axial	Axial to wall	
2.5	2.0	6.9	6.1	3.6	1.1	1 Lux min.
4.0	1.5	5.7	5.3	3.4	0.5	at centre
2.5	3.4	9.7	8.0	5.2	1.7	0.5 Lux min.
4.0	2.5	9.5	7.8	5.0	1.0	(open)

## ORDER CODES

## Description

### FUSION (FLUSH)

<b>FFD/M3</b>	Maintained LED Flush bulkhead
<b>FFD/230</b>	Mains only LED Flush bulkhead
<b>FFF/M3</b>	Maintained 8 watt fluorescent Flush bulkhead
<b>FFF/230</b>	Mains only 8 watt fluorescent Flush bulkhead

### FUSION (EXIT)

<b>FED/M3</b>	Maintained LED recessed bulkhead with AD exit
<b>FED/230</b>	Mains only LED recessed bulkhead with AD exit
<b>FEF/M3</b>	Maintained 8 watt fluorescent recessed bulkhead with AD exit
<b>FEF/230</b>	Mains only 8 watt fluorescent recessed bulkhead with AD exit

OPTIONS: /DALI DALI or Self-Test emergency operation

LEGENDS:	/ECAR EC Format — Arrow Right
	/ECAL EC Format — Arrow Left
	/ECAD EC Format — Arrow Down
	/ISOAR ISO Format — Arrow Right/Left
	/ISOAL ISO Format — Arrow Right/Left
	/ISOAU ISO Format — Arrow Up

# Guidelite

## Decorative Luminaires



The **Guidelite** range offers mains and emergency lighting from stylish low profile luminaires with white polycarbonate bases and a choice of prismatic or opal polycarbonate diffusers. The luminaires are supplied with an 8Watt lamp and gear mounted on a removable geartray.

**Guidelite** luminaires feature 'clip-on' diffusers and the opal version is ideal for use with self-adhesive safety sign legends.

### OPERATION

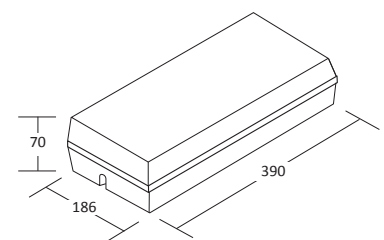
The **Guidelite** luminaires are available with mains only or switchable Maintained operation.

(Non-maintained operation is available by excluding a switched live supply). All emergency versions provide 3 hour duration as standard from integral high temperature Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply.

The luminaires fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	8Watt T5
Supply Current	Maintained: 90mA Mains: 55mA
Cable Entry	20mm drilling points in sides and back
Geartray	White painted steel
IP Rating	IP20 ta25
Dimensions	390mm (L) x 186mm (W) x 70mm (H)







GL/M3/LEG/ECAD

## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	1 x 8Watt T5	
Construction	Polycarbonate base and diffuser	
Light output (mains)	100lm	400lm
Light output (emergency)	100lm	—
Battery	2.4V 4Ah NiCd	—
Charge current	250mA nominal	—
Recharge period	24hours (14hrs for 1hr duration)	—
Input voltage	230Volt +/- 10% ~ 50Hz	
Power (maximum)	21VA (max.)	13VA (max.)
Weight	1.8 kg	1.7 kg

Mounting height Hm (m)	Trans. to wall	Trans. to trans.	Axial to trans.	Axial to axial	Axial to wall	
2.5	1.2	4.5	4.0	3.8	0.9	1 Lux min.
4.0	1.0	1.4	1.1	1.0	0.8	at centre
2.5	2.6	7.2	6.6	6.1	2.2	0.5 Lux min.
4.0	1.9	7.2	6.6	6.2	1.7	(open)

## ORDER CODES

## Description

GL/M3/CL	Maintained 8 watt white with prismatic polycarbonate diffuser
GL/230/CL	Mains only 8 watt white with prismatic polycarbonate diffuser

OPTIONS: /OP Opal Diffuser

SELF-ADHESIVE SIGN KITS:	/GL/LEG/ECAR EC Format Self-adhesive — Arrow Right
	/GL/LEG/ECAL EC Format Self-adhesive — Arrow Left
	/GL/LEG/ECAD EC Format Self-adhesive — Arrow Down
	/GL/LEG/ISOAR ISO Format Self-adhesive — Arrow Right
	/GL/LEG/ISOAL ISO Format Self-adhesive — Arrow Left
	/GL/LEG/ISOAU ISO Format Self-adhesive — Arrow Up

# Maxim

## LED Exit Signs



The **Maxim** LED exit sign is an attractive, specifiable product that offers long life and low energy with excellent performance. These very slim wall mounted luminaires feature a welded steel housing providing a 'picture frame' appearance around the bright and evenly illuminated safety sign panel.

The **Maxim** exit sign luminaires provide smaller physical dimensions than conventional fluorescent exit signs making installations more attractive. However, the **Maxim** signs still provide a useful 25metre viewing distance. The back plate mounts on the wall using simple keyhole slots or via the central BESA entry. The front cover then simply hooks onto the back plate and is retained with a single fixture at the base.

The front cover is supplied in textured white as standard and a textured silver grey finish is also available.

### OPERATION

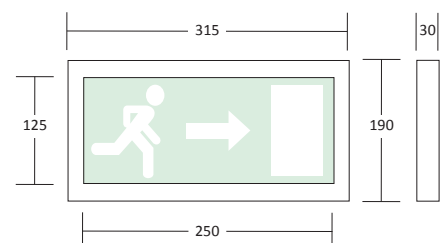
The **Maxim** exit sign features an internal Miro® reflector and the sign panel features matrix dot coating to ensure that the 15 x white LEDs evenly illuminate the safety sign legend. The design makes the best possible use of the size and performance benefits provided from the latest LED technology.

All **Maxim** exit sign luminaires incorporate long life high brightness white LEDs with a typical life expectancy of over 50,000 hours. (**NB:** Self-test, DALI and 24Volt versions are also available).

Standard **Maxim** luminaires are supplied with integral Maintained emergency lighting control gear powering the 15 high brightness white LEDs which clearly and evenly illuminate the safety sign legends. In the event of a power failure the **Maxim** LED exit sign continues to operate with the same sign Luminance for 3Hours from the internal NiMH battery.

### GENERAL SPECIFICATION

Operation	Maintained
Light source	15 x Long life white LEDs
Battery	2.4Volt 2.0Ah NiMH
Charge current	100mA nominal
Recharge period	24hours (14hrs for 1hrs duration)
Input voltage	230Volt +/- 10% ~ 50Hz
Power	10VA
IP Rating	IP20
Weight	1.7 kg





The wall mounted **Maxim** LED exit sign luminaires comprise a galvanized steel backplate, a welded steel front section retaining 15 x white LEDs, the legend panel and a Miro® reflector. The luminaires should be ordered with appropriate safety sign legend.

The back plate is mounted using two keyhole slots and two screw points or via the centrally mounted BESA entry. The decorative front section is available with a choice of finishes.

All versions are supplied with integral Maintained emergency lighting control gear powering 15 high brightness white LEDs which clearly and evenly illuminate the safety sign legends.

All **Maxim** luminaires comply with the relevant requirements of EN60598.2.22



MX/M3/WH/ISOAU

## ORDER CODES

**MX/M3/WH**

OPTIONS:

LEGENDS:

## Description

Wall mounted LED exit sign, 3 hour maintained, white front plate,

**/DALI** DALI or Self-Test emergency operation

**/SL** Textured Silver grey finish

**/ECAR** EC Format — Arrow Right

**/ECAL** EC Format — Arrow Left

**/ECAD** EC Format — Arrow Down

**/ISOAR** ISO Format — Arrow Right/Left

**/ISOAL** ISO Format — Arrow Right/Left

**/ISOAU** ISO Format — Arrow Up

# MetaLED

## LED Exit Sign Luminaires



The **MetaLED** range provides excellent viewing distances of 36metres from a conventional package but with the advantage of using long life, low energy LEDs as a light source.

**MetaLED** exit sign luminaires feature epoxy coated steel enclosures with screen printed opal polycarbonate legend panels enclosing integral rechargeable batteries and a PCB fitted with advanced wide angle white LEDs and efficient driver circuit.

### OPERATION

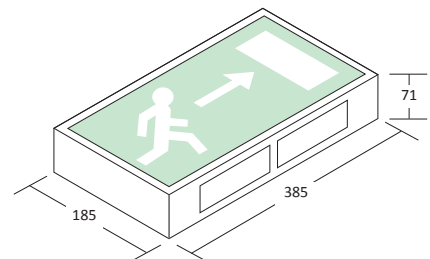
The **MetaLED** range is supplied with Maintained operation as standard providing 3 hour duration.

(Non-maintained operation is available by excluding a switched live supply). Pictogram legend panels complying with the Safety Signs Regulations are supplied as standard but ISO sign formats are also available to special order.

The luminaire fully complies to the requirements of EN60598.2.22 and offers bright and even luminance across the legend panel ensuring maximum visibility in the event of an emergency.

### GENERAL SPECIFICATION

Construction	Epoxy coated galvanised steel
Supply Voltage	230Volt (220-240V) ~ 50 Hz
Light Source	12 x White LEDs
Supply Current	Maintained: 45mA Non-maintained: 30mA
Light output	100 lumens
Battery	4 cell 1.1Ah Nickle Metal Hydride
Cable Entry	20mm knock-outs top and back
Dimensions	385mm (L) x 185mm (W) x 71mm (H)





MD/M3/WH/ISOAU

## SPECIFICATION

OPERATION	Maintained	Mains only
Light source	12 x wide angle White LEDs	
Light output (mains)	100lm	100lm
Light output (emergency)	100lm	—
Battery	4 x 1.1Ah NiMH	—
Charge current	100mA	—
Recharge period	24hours (max)	—
Input voltage	230Volt +/- 10% ~ 50Hz	
Power	4VA (max.)	<4VA
Weight	2.4 kg	2.3 kg

## ORDER CODES

### Description

<b>MD/M3/WH</b>	Maintained LED exit sign luminaire
<b>MD/230/WH</b>	Mains only LED exit sign luminaire

#### LEGENDS:

<b>/ECAR</b>	EC Format — Arrow Right
<b>/ECAL</b>	EC Format — Arrow Left
<b>/ECAD</b>	EC Format — Arrow Down
<b>/ISOAR</b>	ISO Format — Arrow Right
<b>/ISOAL</b>	ISO Format — Arrow Left
<b>/ISOAU</b>	ISO Format — Arrow Up

# Metalite

## T5 Exit Sign Luminaires



The **Metalite** range provides excellent viewing distances of 36metres from a conventional but stylish package.

Metalite exit sign luminaires feature epoxy coated steel enclosures with screen printed opal polycarbonate legend panels.

The **Metalite** range is also available with brass or chrome finishes to complement most interior designs.

### OPERATION

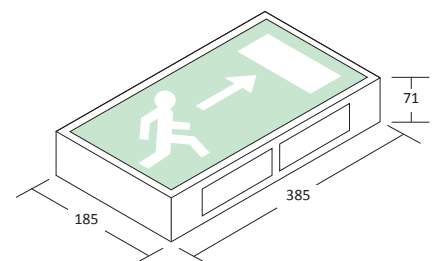
The **Metalite** range is available with Maintained or Non-maintained operation providing 3 hour duration.

(Non-maintained operation can be achieved by excluding the normal switched mains live supply). Pictogram legend panels complying with the Safety Signs Regulations are supplied as standard but ISO sign formats are also available to special order.

The luminaire fully complies to the requirements of EN60598.2.22 and offers bright and even luminance across the legend panel thereby ensuring maximum visibility in the event of an emergency.

### GENERAL SPECIFICATION

Construction	Epoxy coated galvanised steel
Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	8Watt T5
Supply Current	Maintained: 90mA Non-maintained: 40mA
Cable Entry	Back BESA entry
Light output	100 lumens
Battery	2 cell 4Ah Nickel Cadmium
Dimensions	385mm (L) x 185mm (W) x 71mm (H)





ML/BX/M3/BR/ISOAL

## SPECIFICATION

OPERATION	Non-Maintained	Maintained	Mains only
Light source	1 x 8Watt T5		
Construction	Steel enclosure and geartray with screen printed polycarbonate legend panel		
Light output (mains)	—	100lm	400lm
Light output (emergency)	100lm	100lm	—
Battery	2.4V 4Ah NiCd		—
Charge current	250mA nominal		—
Recharge period	24hours (14hrs for 1hr duration)		—
Input voltage	230Volt +/- 10% ~ 50Hz		
Power	9VA (max.)	21VA (max.)	13VA
Weight	2.5 kg	2.9 kg	2.5 kg

## ORDER CODES

## Description

ML/BX/M3/WH

Maintained 8 watt exit sign luminaire

ML/BX/230/WH

Mains only 8 watt exit sign luminaire

OPTIONS:

**/BR** Brass finish  
**/CH** Chrome finish

LEGENDS:

**/ECAR** EC Format — Arrow Right  
**/ECAL** EC Format — Arrow Left  
**/ECAD** EC Format — Arrow Down  
**/ISOAR** ISO Format — Arrow Right  
**/ISOAL** ISO Format — Arrow Left  
**/ISOAU** ISO Format — Arrow Up

# Mizzen

## LED Exit Sign Luminaires



The **Mizzen** sign luminaire offers a really attractive method of providing an illuminated safety sign with adjustable suspension heights from a surface mounted gear box and with no visible power cable.

The integral LEDs illuminating the double sided engraved safety legends have long life (>50,000 hrs) and operate at very low energy.

These luminaires feature a small surface mounted plastic gear box and a suspended extruded aluminium LED housing which also retains the legend panel.

### OPERATION

The integral circuit provides maintained (mains and emergency) operation of the LED illuminated engraved legend panel.

The height of the panel can be set by adjusting the lengths of the suspension wires via slide and lock holders in the gear box. The suspension wires also provide the SELV electrical supply to the LEDs so there is no need to have a visible power cable.

The **Mizzen** luminaires are designed to comply with EN60598.2.22

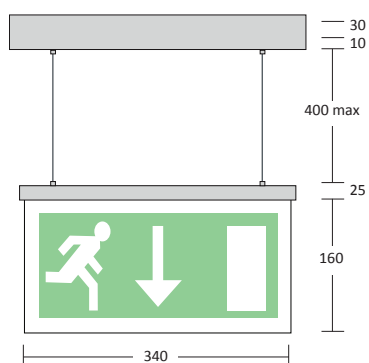






### GENERAL SPECIFICATION

Operation	Maintained — Mains + 3hr emergency
Light source	18 long life White SMD LEDs
Battery	3.6V 1.0Ah NiCd
Charge current	90mA nominal
Recharge period	24hours (14hrs for 1hr duration)
Input voltage	230Volt +/- 10% ~ 50Hz
Power	8VA (max)
IP Rating	IP20
Weight	1.7 kg



### ORDER CODES

### Description

#### MZ/M3

Maintained LED exit sign surface mounted or recessed gearbox with suspended LED strip and double sided engraved and printed legend

#### LEGENDS:

- /ECAR** EC Format — Arrow Right
- /ECAL** EC Format — Arrow Left
- /ECAD** EC Format — Arrow Down
- /ISOAR** ISO Format — Arrow Right
- /ISOAL** ISO Format — Arrow Left
- /ISOAU** ISO Format — Arrow Up

# Navigator

## Bulkhead Luminaires



The **Navigator** series provides a high quality IP65 rated, full size polycarbonate bulkhead luminaire with a choice of fresnel lens or opal polycarbonate diffuser.

The Navigator is supplied as standard with 100 lumen output but the High Light output version provides 180 lumens which, when fitted with the fresnel lens, creates opportunities to minimise the number of luminaires required within an installation.

**Navigator** luminaires can be surface mounted or semi-recessed and exit sign legends can be applied for safety sign applications.

### OPERATION

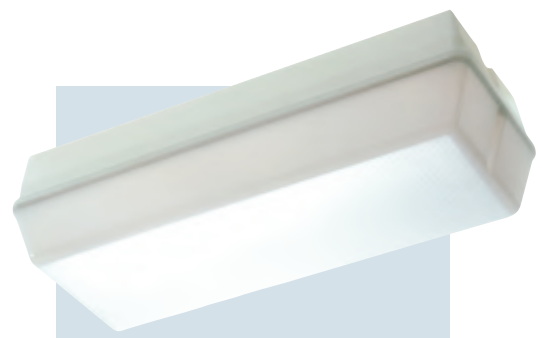
The **Navigator** luminaires are available with Maintained, Non-maintained or mains only operation.

All emergency versions provide 3 hour duration as standard from integral high temperature Nickel Cadmium batteries. Maintained versions can be used for standard switched mains lighting but will automatically provide emergency lighting in the event of a complete loss of normal mains supply. Combined versions provide the same operation utilising separate lamps for mains and emergency.

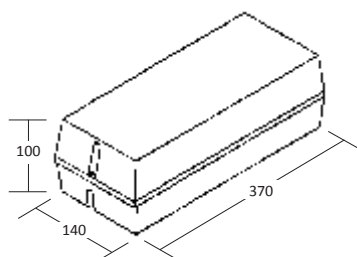
Accessories such as self-adhesive pictogram legend panels, semi-recessing bezels and tamper-proof screws are available to complete the range.

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	8Watt T5
Supply Current	Maintained: 90mA Non-maintained: 40mA
Cable Entry	20mm drilling points in ends and back
Geartray	Hinged white painted steel
IP Rating	IP65 ta25
Dimensions	370mm (L) x 140mm (W) x 100mm (H)








NV/NM3/OP



## SPECIFICATION

OPERATION	Non-Maintained	Maintained	Mains only
Light source	1 x 8Watt T5		
Construction			
<i>Standard</i>	White polycarbonate base and clear fresnel lens		
<i>/HL High Light</i>	White polycarbonate base and clear fresnel lens		
Light output (mains)			
<i>Standard</i>	—	100lm	400lm
<i>/HL High Light</i>	—	180lm	400lm
Light output (emergency)			
<i>Standard</i>	100lm	100lm	—
<i>/HL High Light</i>	180lm	180lm	—
Battery			
<i>Standard</i>	2.4V 4Ah NiCd		—
<i>/HL High Light</i>	2.4V 4Ah NiCd		—
Charge current	250mA nominal		—
Recharge period	24hours (14hrs for 1hr duration)		—
Input voltage	230Volt +/- 10% ~ 50Hz		
Power	9VA (max.)	21VA (max.)	13VA
Weight	1.6kg	1.8kg	1.5kg

	Mounting height Hm (m)	Trans. to wall    Trans. to trans.    Axial to trans.    Axial to axial    Axial to wall					
							
Worst case (standard /opal)	2.5	1.2	4.5	4.1	3.9	1.0	1 Lux min. at centre
	4.0	0.5	1.4	1.3	1.2	0.6	
Best case (HighLight fresnel)	2.5	2.7	7.3	6.5	6.2	2.2	0.5 Lux min. (open)
	4.0	2.0	7.4	6.5	6.3	1.7	
Best case (HighLight fresnel)	2.5	3.0	9.2	8.1	5.4	2.0	1 Lux min. at centre
	4.0	2.4	8.7	4.6	4.3	1.4	
Best case (HighLight fresnel)	2.5	5.1	12.5	10.6	6.5	2.6	0.5 Lux min. (open)
	4.0	4.4	12.6	10.8	6.9	2.2	

### ORDER CODES

ORDER CODES	Description
<b>NV/NM3</b>	Non-Maintained 8 watt polycarbonate bulkhead with fresnel lens
<b>NV/M3</b>	Maintained 8 watt polycarbonate bulkhead with fresnel lens
<b>NV/230</b>	Mains only 8 watt polycarbonate bulkhead with fresnel lens
<b>NV/C3</b>	Combined 8 watt (mains and separate emergency)

### HIGHLIGHT VERSIONS

<b>NV/NM3/HL</b>	As <b>NV/NM3</b> but with HighLight output inverter/battery
<b>NV/M3/HL</b>	As <b>NV/M3</b> but with HighLight output maintained inverter/battery

OPTIONS: **/OP** Opal Diffuser; **/RB** Semi-recessing Bezel; **/WG** Wire Guard

SELF-ADHESIVE SIGN KITS:	Description
<b>/NV/LEG/KIT/EC</b>	EC Format Self-adhesive kit
<b>/NV/LEG/ISOAR</b>	ISO Format Self-adhesive kit — Arrow Right
<b>/NV/LEG/ISOAL</b>	ISO Format Self-adhesive kit — Arrow Left
<b>/NV/LEG/ISOAU</b>	ISO Format Self-adhesive kit — Arrow Up

# PanelLED

## Recessed LED Panels



### Low energy, long life LED Luminaires

Available in two standard sizes and as mains only or in maintained emergency versions, **PanelLED** recessed LED luminaires provide aesthetic simplicity, high light output, low energy and long life from a very slim (<20mm) package.

The PL240-13-R round **PanelLED** is 25mm thick and comes with spring fixings for recessing into tiles and plasterboard ceilings. The PL600-50-S square **PanelLED** is only 12mm thick and drops into a standard 600mm square tile opening in exposed-T ceilings.

Installation kits are also available to suspend the PL600 panel from wires or fit the panel direct to the surface of a ceiling or wall.

### OPERATION

The **PanelLED** luminaires operate at 24-39Volts from 230Volt 50Hz supplies via small power factor corrected electronic drivers.

The front face of **PanelLED** luminaires operates with an even luminance distribution at a colour temperature of 4500K (white) and provides glare free illumination on the working plane.

Maintained versions can be used for standard switched mains lighting and will automatically provide emergency lighting in the event of a loss of the normal mains supply.



PL240-13-R



PL600-50-S



### PL240-13-R

**PanelLED** recessed LED luminaire;  
240mm diameter, 13Watts, 1280Lumens, White.

Design life >50,000 Hours

The luminaire can be fitted into ceiling tiles or plasterboard ceilings using the integral fixing springs.

#### SPECIFICATION

Supply voltage (into driver)	110 - 254V (50 Hz)
Typical supply power	13 Watts
Maximum supply power	15 Watts
Typical power factor	0.9
Typical lumens	1280lm
Typical efficiency	85lm/W
Colour temperature	4500K
RA	80
Dimensions	240mm (dia) x 20mm (h)
Fixing	Clips

### PL600-50-S

**PanelLED** recessed LED luminaire;  
600mm x 600mm, 50Watts, 5000Lumens, White.

Design life >50,000 Hours.

The luminaire can be fitted into exposed T ceilings by resting on the T bar frame.

#### SPECIFICATION

Supply voltage (into driver)	110 - 254V (50 Hz)
Typical supply power	47 Watts
Maximum supply power	50 Watts
Typical power factor	0.9
Typical lumens	4250lm
Typical efficiency	82lm/W
Colour temperature	4500K
RA	80
Dimensions	595mm (sq) x 12mm (h)

#### ORDER CODES

#### Description

##### 240 DIA/13W VERSIONS

<b>PL240/13/R</b>	Mains only version
<b>PL240/13/R/M3</b>	Maintained emergency version

##### 600mm<sup>2</sup>/50W VERSIONS

<b>PL600/50/S</b>	Mains only version
<b>PL600/50/S/M3</b>	Maintained emergency version

##### ACCESSORIES for PL600:

<b>/SM</b>	Surface mount kit (direct mount on ceiling or wall)
<b>/WIRE KIT</b>	Wire suspension kit
<b>/DALI-DIM</b>	DALI dimming version

# SignalLED

## LED Exit Sign Luminaires

SLD/M3/SL/ISOAR



The **SignalLED** range of LED exit sign luminaires offer long life, low energy and flexible mounting solutions in a choice of attractive, maintained packages.

The suspended luminaires feature extruded aluminium housings and a wide range of mounting attachments allowing wall, ceiling or suspended solutions. The recessed luminaires have conventional styling but with all the size and performance benefits provided from the latest LED technology. The luminaires feature a unique method of fitting legend 'screens' onto the face of the acrylic panel.

All **SignalLED** luminaires incorporate long life high brightness white LEDs with a typical life expectancy of over 50,000 hours. DALI and Self-test versions are also available.

### SUSPENDED/SURFACE VERSIONS

The suspended **SignalLED** luminaires are much smaller than conventional fluorescent hanging sign luminaires making installations more attractive but still providing 28metre viewing distance. All units are supplied with integral Maintained emergency lighting control gear powering 15 high brightness white LEDs which clearly and evenly illuminate the safety sign legends.

The range of mounting brackets allow fixing direct to the ceiling, wall fixing (parallel or perpendicular to the wall) or suspended solutions (surface or wire). In all cases the fixing brackets retain the standard luminaire body via quick release spring clips or two quarter turn latches.

### RECESSED VERSIONS

Although recessed **SignalLED** luminaires have a similar appearance to conventional recessed exit signs these LED fittings are much smaller and make installations far more attractive. The housing has adjustable arms to simplify installation into different thickness supporting surfaces and the visible ceiling plate is available with a choice of finishes. As with the suspended **SignalLED** luminaires the recessed versions are supplied with integral Maintained emergency lighting control gear powering 15 high brightness white LEDs which clearly and evenly illuminate the safety sign legends.

All **SignalLED** luminaires comply with the relevant requirements of EN60598.2.22



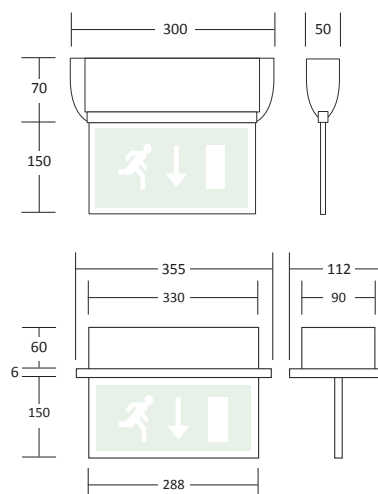
SLD/WIRE



RLD/M3/WH/ECAD

## GENERAL SPECIFICATION

Operation	Maintained
Light Source	15 Long life white LEDs
Battery	4.8V 1.1Ah NiCd
Charge Current	200mA nominal
Recharge Period	24hrs (14hrs for 1hr duration)
Input Voltage	230V ± 10% ~ 50Hz
Power	12VA
IP Rating	IP20



## ORDER CODES

## Description

### SUSPENDED VERSIONS

<b>SLD/M3/SL</b>	Suspended LED exit sign	Maintained	Silver aluminium body
<b>SLD/CBRK/SL</b>	Ceiling mounting bracket		
<b>SLD/WBRK/SL</b>	Wall mounting bracket		
<b>SLD/EBRK/SL</b>	End fixing (flag) wall mounting bracket		
<b>SLD/WIRE/SL</b>	Wire suspension kit (adjustable to 1metre max)		
OPTIONS:	<b>/DALI</b>	DALI or Self-Test emergency operation	
	<b>/WH</b>	White painted finish	
	<b>/BR</b>	Brass finish	
LEGENDS:	<b>/ECAR</b>	EC Format — Arrow Right	
	<b>/ECAL</b>	EC Format — Arrow Left	
	<b>/ECAD</b>	EC Format — Arrow Down	
	<b>/ISOAR</b>	ISO Format — Arrow Right	
	<b>/ISOAL</b>	ISO Format — Arrow Left	
	<b>/ISOAU</b>	ISO Format — Arrow Up	

### RECESSED VERSIONS

<b>RLD/M3/WH</b>	Recessed LED exit sign	Maintained	White painted ceiling plate
OPTIONS:	<b>/DALI</b>	DALI or Self-Test emergency operation	
	<b>/BR</b>	Brass finish	
LEGENDS:	<b>/ECAR</b>	EC Format — Arrow Right	
	<b>/ECAL</b>	EC Format — Arrow Left	
	<b>/ECAD</b>	EC Format — Arrow Down	
	<b>/ISOAR</b>	ISO Format — Arrow Right	
	<b>/ISOAL</b>	ISO Format — Arrow Left	
	<b>/ISOAU</b>	ISO Format — Arrow Up	

**NB:** For SLD versions the standard body must be ordered with an appropriate mounting kit

# TDF

## Projector Luminaires

The **TDF (Twin Décor Flood)** range offers simple and effective emergency lighting from attractive high intensity projectors. More suitable for areas with aesthetic concerns than conventional Twin Projector floodlights the **TDF** units are ideal for a wide range of applications requiring open area illumination.

The 20Watt projector heads provide excellent performance and full photometry is available upon request.

The **TDF** units are supplied with high quality 5 year life Valve Regulated Lead Acid batteries.

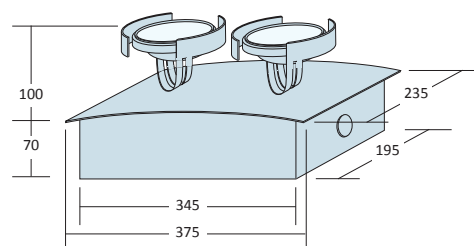
### OPERATION

The **TDF** units are supplied as standard with Non-maintained operation with anodised aluminium heads and a metallic grey powder coat finish to the main enclosure.

The self-contained circuit provides charge healthy monitoring and lamp filament monitoring. The twin 20Watt **TDF** provides 3 hour duration from the integral VRLA batteries and fully complies with the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	2 x 20Watt TH
Supply Current	Non-maintained: 80mA
Cable Entry	20mm hole in ends and back
Construction	Metallic grey epoxy coated steel enclosure
IP Rating	IP20 ta25
Dimensions	375mm (W) x 235mm (H) x 80mm (D)
Weight	8.0 kg







**ORDER CODES**

TDF/NM3/20

**Description**

2 x 20 watt TH Non-maintained with 3 hour duration

# TwinFlood

## Projector Luminaires



The **TwinFlood** range offers simple and effective emergency lighting from robust high intensity projectors. Available for indoor or exterior installations and with a choice of glass or polycarbonate lenses the TwinFlood units are ideal for a wide range of lighting applications.

The projector heads are also available separately for remote mounting complete with terminal box.

**TwinFlood** units are supplied with high quality 5 year life Valve Regulated Lead Acid batteries.

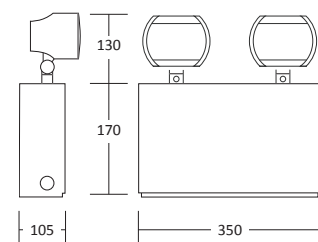
### OPERATION

**TwinFlood** units supplied as standard with Non-maintained operation. The twin 20Watt versions provide 3 hour duration from the integral VRLA batteries. Twin 55Watt versions provide 1 hour duration and have glass fronts.

The units fully comply to the requirements of EN60598.2.22

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Lamp	2 x 20Watt TH or 2 x 55Watt TH
Supply Current	Non-maintained: 80mA
Cable Entry	20mm hole in ends
Construction	White epoxy coated steel enclosure
Construction /WP	Light grey GRP enclosure
IP Rating	IP20 ta25 or IP65 ta25
Dimensions	Standard as drawing
Dimensions /WP	300mm (L) x 330mm (H) x 130mm (D)
Weight	8.1 kg





## SPECIFICATION

Version	2 x 20Watt	2 x 55Watt
Projectors	Wide distribution polycarbonate lens	Narrow distribution glass lens
Battery	12Volt 12Ah VRLA	
Recharge period	24hours (14hrs for 1hr duration)	
Input voltage	230Volt +/- 10% ~ 50Hz	

Mounting height Hm (m)	Max distance between 20W projectors	
4	22m	1 Lux min. at centre of escape
6	24m	
8	21m	
10	—	
4	24m	0.5 Lux min. open area
6	30m	
8	25m	
10	20m	

## ORDER CODES

## Description

<b>TF/NM1/20</b>	2 x 20 watt TH Non-maintained with 1 hour duration
<b>TF/NM3/20</b>	2 x 20 watt TH Non-maintained with 3 hour duration
<b>TF/NM1/55</b>	2 x 55 watt TH Non-maintained with 1 hour duration

OPTIONS:	<b>/WP</b> IP65 version
	<b>/RH20</b> Remote 20 watt heads
	<b>/RH55</b> Remote 55 watt heads

# RGT

## Refurbishment Geartrays



During routine maintenance visits, lighting engineers are often faced with trying to establish why an existing or old emergency luminaire is not working.

The possible causes could relate to breakdown faults within 3 complex and expensive components, each individually taking a considerable amount of time to replace.

Changing the complete luminaire is not normally an option because of potential damage to the décor and difficulty in finding new luminaires which match the existing installation.

### SOLUTION

The **RGT** Refurbishment Geartray has been specifically developed by ELP to provide a quick, efficient replacement for all of the internal equipment in a wide range of circular, square and rectangular luminaires.

Fully complete, the **RGT** geartray mounts on two universal brackets requiring just two fixing holes to be located in the luminaire base. The **RGT** comes fully finished with integral HF ballast/emergency lighting inverter and high temperature Nickel Cadmium batteries.

Two versions, one for 16, 21, 28Watt lamps and a second version for 38Watt 2D lamps are available (lamps are not included but are available separately). The 2D lamps run at full light output on normal mains supply and at approximately 18% of normal output in emergency mode.

The **RGT** units are supplied complete with fixing brackets and individually packed making them ideal for holding in stock or for issuing to mobile engineers.

## SPECIFICATION

Supply voltage	230Volt (220-240V) ~ 50 Hz
Maximum power	48VA
Protection	Class 1
Battery	4 cell NiCd
Maximum dimensions with lamp fitted	182 x 182 x 74mm (h)
Connection	4-way terminal block with fused switched LIVE
Fixing	Integral brackets



## ORDER CODES

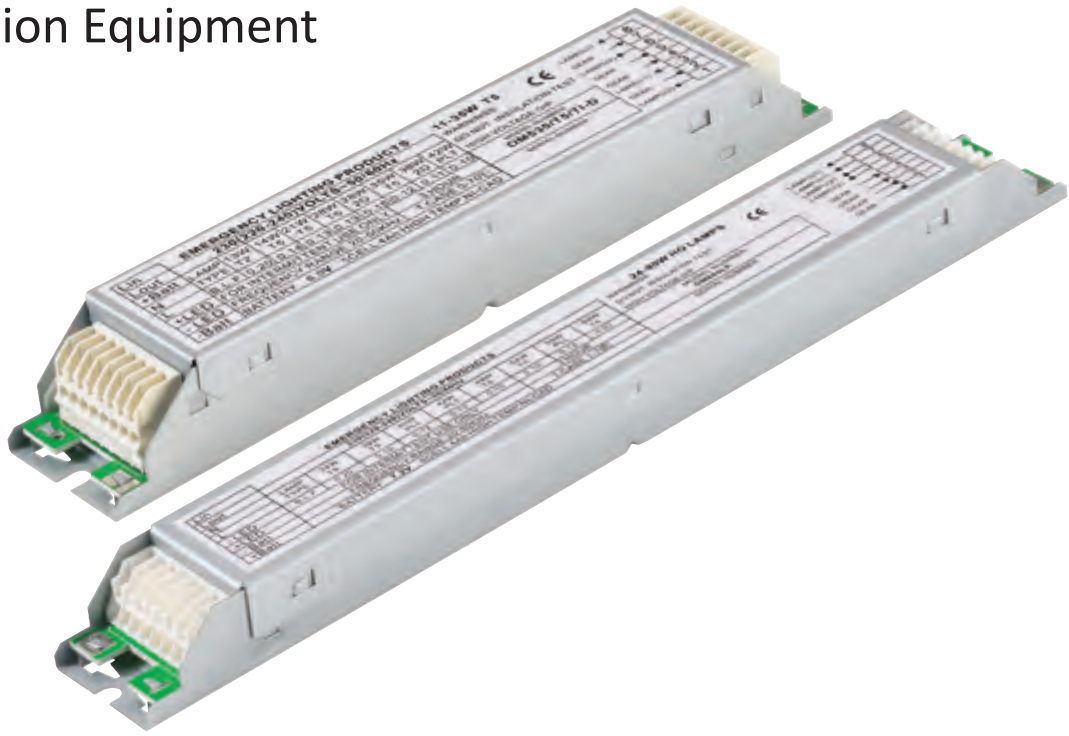
ORDER CODES	Description
<b>RG28/M3</b>	Maintained geartray for 16, 21 and 28W 2D lamps (4cell battery)
<b>RG38/M3</b>	Maintained geartray for 38W 2D lamps (4cell battery)

### OPTIONS:

Suffix: <b>/A037</b>	28W 2D lamp
Suffix: <b>/A051</b>	38W 2D lamp

# ECK

## Conversion Equipment



**ECK (Emergency Conversion Kits)** comprise a high quality emergency lighting inverter module and the appropriate battery pack. Standard kits offer 4Ah High Temperature Nickel Cadmium cells in a stick format. However, side by side formats and Nickel Metal Hydride batteries are also available.

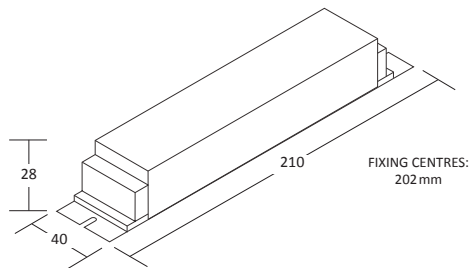
**ECK** kits are available with **OM** or **OM/LP** inverter modules which are referred to as 'Total Isolation' or 5-pole control units (featuring full 4pole change-over of the lamp/gear connections plus a timed fifth pole to make & break the ballast live supply). This ensures that the **ECK** conversion kits are suitable for all ballast types including HF and dimming.

### STANDARD OM MODULES

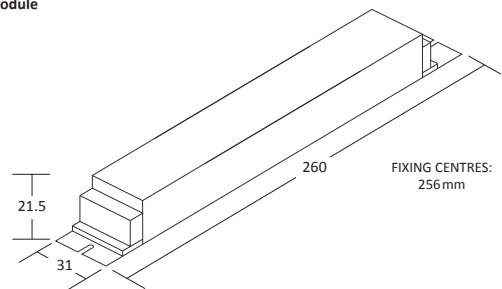
The **OM** Module range has been designed to suit all emergency lighting applications requiring inverter/battery kits to be integrated into modern mains voltage luminaires.

The compact dimensions provide flexibility for internal component layout and the push-wire/IDC terminals simplify assembly whether manual or robotic. Case temperature (tc) rated at 70°C.

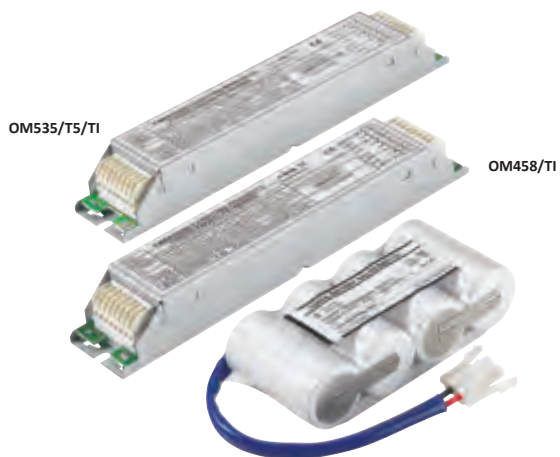
The modules fully comply to EN61347 and EN60925



OM Module



OM/LP Module





### LOW PROFILE OM/LP MODULES

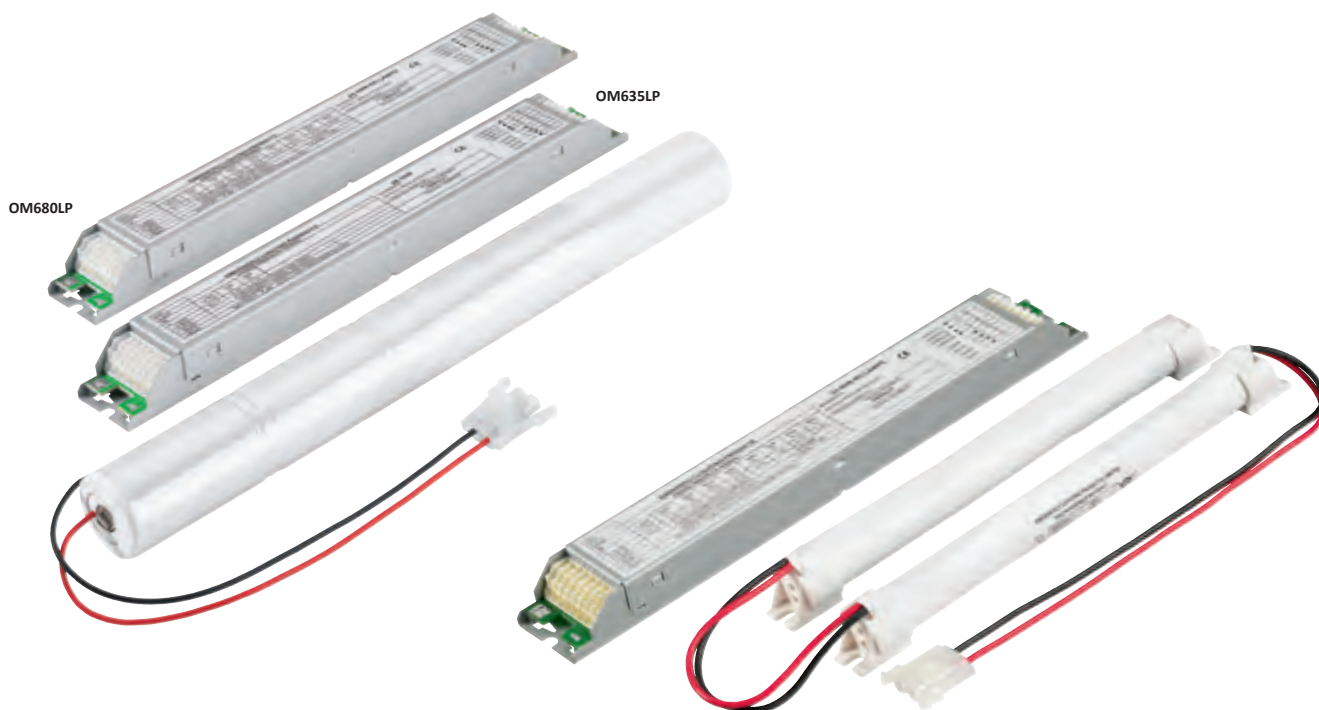
The **OM/LP** Modules have been designed to suit all common T5 fluorescent luminaires.

The **OM680/LP** covers all high output lamps from 40 to 80Watts and for specific operation of lamps up to 40Watts there is the **OM635/LP**.

Ballast Lumen Factors and basic performance of the **OM680LP** module is identical to the standard **OM680** module. The compact dimensions provide flexibility for internal component layout and the push-wire terminals simplify manual or robotic assembly.

Case temperature (tc) rated at 70°C.

The **OM635/LP** & **OM680/LP** low profile modules are fully compliant with EN61347 and EN60925



**OM680LP** — shown with standard B041 slim-line battery pack

# ECK

## Conversion Equipment



### BATTERY PACKS

Standard ECK conversion kits are supplied with 4Ah 'D' size high temperature Nickel Cadmium cells in stick format although side by side packs are also available.

For the ECK635/LP and ECK680/LP Low Profile kits, battery packs made up of two 3cell sticks using 4Ah A-size Nickel Metal Hydride batteries are supplied as standard to complement the height of the Low Profile OM/LP modules.

**NB:** 4Ah C-size Nickel Metal Hydride cells are also available offering a shorter pack length.

All available batteries are connected to the appropriate module via a non-reversible plug & socket. All modules are calibrated to give the optimum light output from the largest lamp wattage within the stated range. The Ballast Lumen Factors are measured at the nominal battery voltage following ICEL lamp and ballast compatibility tests.

The 4Ah battery pack will provide a 3hour duration for at least 4years (assuming environmental limits are met).



Example of Stick battery supplied with ECK kits

**(B003) 3.6Volt 4Ah NiCd**

Single cell dimension:-  
60mm (L) x 33mm (Dia.)



Example of side by side battery available for ECK kits

**(B003SBS) 3.6Volt 4Ah NiCd**

Single cell dimension:-  
60mm (L) x 33mm (Dia.)



Standard battery for ECK635/LP and ECK680/LP (Low-Profile)

**(B041) 7.2Volt A-size 4Ah NiMH battery**

Dimensions:-  
212mm (L) x 40mm (W) x 18mm (H)



Alternative battery for ECK635/LP and ECK680/LP (Low-Profile)

**(B039) 7.2Volt C-size 4Ah NiMH battery**

Pack Dimensions:-  
150mm (L) x 58mm (W) x 28mm (H)



B039 Alternative battery pack for LP (low-Profile) modules

Nickel Metal Hydride (NiMH) batteries are limited to lower operating temperatures than Nickel Cadmium (NiCd) — typically NiMH batteries are limited to an absolute maximum of 50oC; NiCd batteries can withstand continuous temperatures of 55oC.

NiMH batteries also have a shelf life. It is essential that NiMH batteries are not stored for more than six months.

### FIXING CENTRES FOR BATTERY PACKS WITH END CAPS

4Ah 'D' NiCd — single cell 60mm (L) x 33mm (dia.)

3-cell (1x3 cell stick)	4-cell (1x4 cell stick)	4-cell (2x2 cell sticks)	5-cell (2cell+3cell)	6-cell (2x3 cell sticks)
200mm	260mm	140mm	320mm	200mm

4Ah 'A' NiMH — single cell 70.8mm (L) x 18mm (dia.)

3-cell (1x3 cell stick)	4-cell (1x4 cell stick)	4-cell (2x2 cell sticks)	5-cell (2cell+3cell)	6-cell (2x3 cell sticks)
230mm	—	160mm	160mm + 230mm	230mm

4Ah 'C' NiMH — single cell 50mm (L) x 26mm (dia.)

3-cell (1x3 cell stick)	4-cell (1x4 cell stick)	4-cell (2x2 cell sticks)	5-cell (1x5 cell sticks)	6-cell (2x3 cell sticks)
170mm	220mm	120mm	270mm	170mm



### LAMP SELECTION and BLF (%)

LAMP	OM336 ECK336	OM458 ECK458	OM570 ECK570	OM421T5 ECK421T5	OM535T5 ECK535T5	OM524/49 ECK524/49	OM539/54 ECK539/54	OM635/LP ECK635/LP	OM/ECK680 OM/ECK680/LP
9W TCSEL	18	18	18	•	•	•	•	•	•
10W TCD	18	18	20	21	•	•	•	•	•
11W TCS	17	18	20	21	•	•	•	•	•
13W TCD	15	17	21	20	•	•	•	•	•
13W TCT	15	17	21	21	21	•	•	25	•
13W T5	17	18	21	•	•	•	•	•	•
14W T5	•	•	•	19	20	•	•	26	•
16W 2D	17	19	19	18	•	•	•	24	•
18W TCL	14	15	16	15	17	•	•	22	•
18W TCD	13	14	15	15	16	•	•	21	•
18W TCT	•	14	15	15	16	•	•	20	•
18W T8	12	13	14	•	•	•	•	20	•
21W T5	•	•	•	14	16	•	•	24	•
24W TCL	•	12	14	14	15	•	•	20	•
24W TCF	9	10	11	•	•	•	•	21	•
24W T5	•	•	•	•	•	9	•	20	•
26W TCD	9	11	12	14	15	•	•	20	•
26W TCT	•	•	13	13	15	•	•	20	•
28W 2D	•	14	16	14	16	•	•	20	•
28W T5	•	•	•	•	14	•	•	21	•
32W TCT	•	•	•	•	13	•	•	16	17
35W T5	•	•	•	•	12	•	•	20	20
36W TCL	9	10	11	•	11	•	•	18	18
36W T8	9	10	11	•	•	•	•	•	•
36W TCF	•	8	9	•	11	•	•	15	15
38W 2D	•	8	10	•	11	•	•	15	15
39W T5	•	•	•	•	•	•	6	10	10
40W TCL	•	7	9	•	10	•	•	•	12
42W TCT	•	•	•	•	10	•	•	•	12
49W T5	•	•	•	•	•	6	•	•	10
50W T8	•	7	8	•	•	•	•	•	•
54W T5	•	•	•	•	•	•	5	•	10
55W 2D	•	•	•	•	•	•	9	•	11
55W Circ	•	•	•	•	•	•	10	•	12
55W TCL	•	7	8	•	•	•	9	•	14
57W TCT	•	•	8	•	•	•	•	•	10
58W T8	•	7	8	•	•	•	•	•	•
70W T8	•	•	7	•	•	•	•	•	9
70W TCT	•	•	•	•	•	•	•	•	9
80W T5	•	•	•	•	•	•	6	•	7
80W TCL	•	•	•	•	•	•	6	•	8

#### NOTES:

- Product codes indicate module or kit i.e. OM (module) or ECK (kit) plus the number of cells required for the battery voltage and the optimum lamp wattage e.g. OM458 — module requires 4 cells (4.8volts) and is optimised for 58Watt lamps.
- All ECK kits are available in a remote enclosure where the physical size or internal temperatures of a luminaire make an integral conversion impractical. Please order: **/REC**

# OMpro

## DALI Control and Self-Test Modules for Fluorescent Luminaires



Steel module dimensions:-

260mm (L) x 31mm (W) x 21.5mm (H)

Fixing centres: 256mm

The standard fluorescent **ECK (Emergency Conversion Kits)** comprise an **OM** high quality emergency lighting inverter module and the appropriate battery pack.

Where Self-Test or fully interoperable DALI is required the **OMpro** module should be specified.

The **OMpro** range offers a low-profile charger/inverter module with High temperature Nickel Cadmium or Nickel Metal Hydride batteries to suit the application.

As with standard **OM** or **OM/LP** modules the **OMpro** inverter modules provide 'total isolation' i.e. 5-pole control (featuring full 4pole change-over of the lamp/gear connections plus a timed fifth pole to make & break the ballast live supply) ensuring successful operation with all ballast types including HF and dimming.

### OMpro DALI or SELF-TEST

The **OMpro** module includes fully tested and approved DALI control/reporting. Fully integrated components and the latest software ensure that the **OMpro** equipment can be connected to any approved DALI control system.

The integral software is constantly seeking DALI signals. When the mains supply is initially connected the modules operate in Self-Test mode in accordance with EN62034, automatically initiating a commissioning mode and then at random times commencing the weekly and annual test routine. The built-in real time intelligence ensures that faults such as charge failure, battery failure, etc. will be indicated immediately.

Even while in Self-Test mode the **OMpro** module will continually be prepared for a DALI signal which, if received, will result in the Self-Test mode being disabled and the module reverting to the DALI protocol. This means that the **OMpro** module can be connected to a DALI system at anytime and the module can then be addressed and form part of the DALI installation immediately.

The **OMpro** (modules) range consists of just two module types; the **OMpro3/4** and the **OMpro5/6**. These modules can adapt to the number of cells in the battery to operate a wide range of lamps i.e. the **OMpro3/4** when connected to a 3cell (3.6Volt) battery will operate 8W T5 lamps up to 18Watt T8 lamps while the same module when connected to a 4cell (4.8Volt) battery will operate lamps from 21Watt T5 to 28Watt 2D.

### ORDERING

When ordering all of the necessary components i.e. module, battery, LED must be ordered separately.  
(See page 67 for Order Codes).



## LAMP BLF for OMpro MODULES

LAMP	OMpro 3/4 3 CELL	LAMP	OMpro 3/4 4 CELL	LAMP	OMpro 5/6 5 CELL	LAMP	OMpro 5/6 6 CELL
8W T5	20	21W T5	14	24W T5	15	40W TCL	11
10W TCT	18	24W TCL	12	28W T5	14	42W TCL	10
13W TCT	15	24W TCF	12	32W TCT	11	49W T5	9
14W T5	15	26W TCD	11	36W TCL	10	54W T5	8
18W TCL	14	26W TCT	11	38W 2D	9	55W 2D	8
18W TCD	13	28W 2D	12	39W T5	8	55W Circ.	8
18W TCT	12					55W TCL	8
18W T8	13					57W TCT	8
						70W T8	8
						70W TCT	TBA
						80W T5	8
						80W TCL	7

## OMpro ORDER CODES

### OMpro DALI Module only

OMpro 3/4	(suitable for 3 or 4 cell battery)
OMpro 5/6	(suitable for 5 or 6 cell battery)

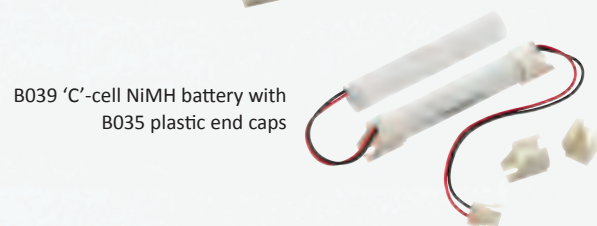
### Battery options:

B003	3-cell 4Ah	'D' NiCd stick
B004	4-cell 4Ah	'D' NiCd stick
B005	5-cell 4Ah	'D' NiCd stick
B006	2 x 3-cell 4Ah	'D' NiCd stick
B009	D-cell plastic end cap	

B057	3-cell 4Ah	'C' NiMH stick
B058	4-cell 4Ah	'C' NiMH stick
B044	2 x 2-cell 4Ah	'C' NiMH stick
B034	2-cell + 3-cell 4Ah	'C' NiMH sticks
B039	2 x 3-cell 4Ah	'C' NiMH sticks
B035	C-cell plastic end cap	

B059	3-cell 3.8Ah	'18670' NiMH stick
B060	2 x 2-cell 3.8Ah	'18670' NiMH sticks
B061	2-cell + 3-cell 3.8Ah	'18670' NiMH sticks
B041	2 x 3-cell 3.8Ah	'18670' NiMH sticks
B040	18mm cell plastic end cap	

LED1000/GRN/RED	High intensity bi-colour LED
S066	LED clip (6.5mm dia)
BL003	Battery connector and lead (module end)



LED1000 GRN/RED LED with S066 clip

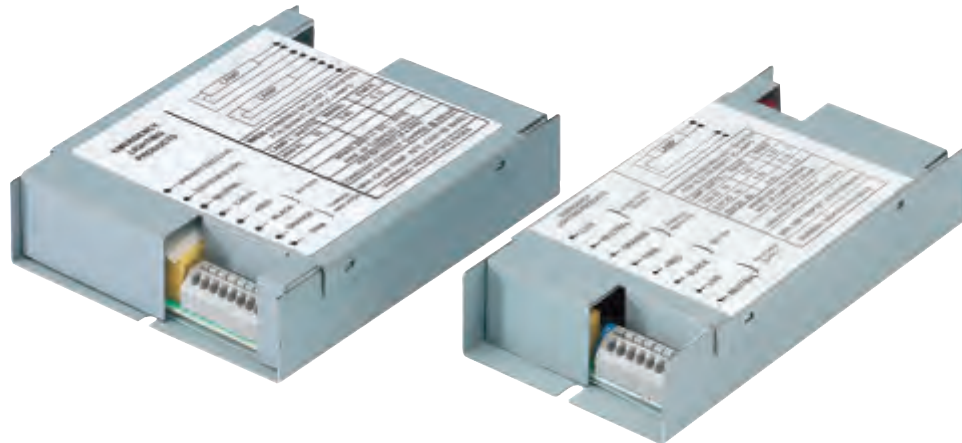


Nickel Metal Hydride (NiMH) batteries are limited to lower operating temperatures than Nickel Cadmium (NiCd) — typically NiMH batteries are limited to an absolute maximum of 50°C; NiCd batteries can withstand continuous temperatures of 55°C.

NiMH batteries also have a shelf life. It is essential that NiMH batteries are not stored for more than six months.

# IM

## Integrated Modules



### INTEGRATED MODULES

The Integrated Modules incorporate a high quality electronic ballast and an emergency lighting inverter within the same enclosure. The module should be connected to a permanent 230Volt supply to charge the Nickel Cadmium or Nickel Metal Hydride batteries. A second switched mains supply then provides normal lighting. In the event of a failure of the permanent supply the lamp continues to operate from the battery.

There are two physically different modules. One is ideally suited to the wide range of circular and square compact fluorescent luminaires which utilise the 28Watt or 38Watt 2D lamps.

The second is designed to fit in the gearbox associated with compact fluorescent downlights. There are different calibrations for various lamp wattages but in all cases the circuits are designed to generate less heat than standard fluorescent control gear helping to maintain optimum battery temperatures within the small enclosures.

### 2D VERSIONS

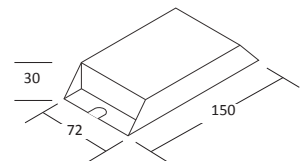
IM Integrated Modules are suitable for operation of all 16 – 38Watt 2D lamps including T5 and Amalgam.

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Input Current	250mA (max.)
Battery	4.8Volt (4 x 4Ah)
Duration	3Hours (4Ah)
Limiting Case Temp.	70°C centre of base

### BALLAST LUMEN FACTORS

Lamp	Mains		Emergency
	POWER	BLF	BLF
16W 2D	16W	1.00	0.27
21W 2D	16W	0.80	0.19
28W 2D	24W	0.90	0.17
<b>IM438</b>			
38W 2D	30W	0.80	0.15



IM Modules for 2D lamps  
Fixing Centres: 144mm

### SINGLE and TWIN COMPACT FLUORESCENT LAMP MODULES

Ideally suited for the wide range of compact fluorescent downlights there are IM modules for single or twin 13Watt, 18Watt, 26Watt, 32Watt and 42Watt PL lamps designed to make the wiring of new luminaires or conversion of existing luminaires fast and cost effective. Utilising the same technology as the single 2D versions these models have the added advantage of being suitable for operation of one or two lamps from the same module. Under normal mains conditions the internal ballast will operate one or two lamps at full output and when the normal supply fails one lamp will automatically

provide emergency lighting operation from the associated Nickel Cadmium or Nickel Metal Hydride battery.

It should be noted that the IM modules for single and twin PL lamps are slightly larger than the 2D versions but are still ideally suited to fit in a typical larger existing gear box or in a bespoke remote enclosure.

Dimensions: 132mm (L) x 105mm (W) x 30mm (H)  
Fixing Centres: 126mm

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Input Current	250mA (max.)
Battery	— IM418 4.8Volt (4 x 4Ah) — IM526 6.0Volt (5 x 4Ah) — IM642 7.2Volt (6 x 4Ah)
Duration	3Hours (4Ah)
Limiting Case Temp.	70°C centre of base

### BALLAST LUMEN FACTORS

Lamp	Mains		Emergency
	POWER	BLF	BLF
13W PL/PLD	31W (max)	0.94	0.19
18W PL/PLD	42W (max)	0.90	0.17
<b>IM526</b>			
18W PL/PLT	48W (max)	0.98	0.19
26W PL/PLT	52W (max)	0.90	0.12
<b>IM642</b>			
32W PL/PLT	75W (max)	0.94	0.15
42W PL/PLT	98W (max)	0.90	0.10



### SINGLE and TWIN LAMP INTEGRATED 'SLIMLINE' MODULES

A range of Integrated HF Ballast and Emergency Lighting Inverter modules for operation of single or twin fluorescent lamps. The use of IM Integrated Modules allows fast and cost effective wiring of new luminaires or conversion of existing luminaires. Utilising modern ballast technology with ELP's proven inverter circuits these units are suitable for single or twin lamp operation from the same module. Under normal mains conditions the internal ballast will

operate one or two lamps at full output and when the normal supply fails one lamp will automatically provide emergency lighting operation from the associated Nickel Cadmium or Nickel Metal Hydride battery pack.

*Dimensions: 424mm (L) x 40mm (W) x 28mm (H)*

*Fixing Centres: 412mm*

#### GENERAL SPECIFICATION

Supply Voltage	220V-240V ~ 50 Hz
Battery — IM540	6.0Volt (5 x 4Ah)
— IM528	
— IM535	
— IM655	7.2Volt (6 x 4Ah)
Duration	3Hours (4Ah)
Limiting Case Temp.	70°C centre of base

#### BALLAST LUMEN FACTORS %

Lamp	Mains		Emergency
	POWER	BLF	
IM540			
13W PL/PLD	84W (max)	98	11
IM655			
26W PL/PLT	112W (max)	97	12
IM528			
32W PL/PLT	58W (max)	98	14
IM535			
32W PL/PLT	73W (max)	98	12

#### ORDER CODES

#### Description

##### INTEGRATED MODULES

IM428	Integrated module for 16, 21 and 28W 2D lamps (requires 4cell battery)
IM438	Integrated module for 38W 2D lamps (requires 4cell battery)
IMK428 or IMK438	Integrated module kit including 4cell 4Ah Nickel Cadmium battery

##### SINGLE/TWIN COMPACT FLUORESCENT LAMPS MODULES

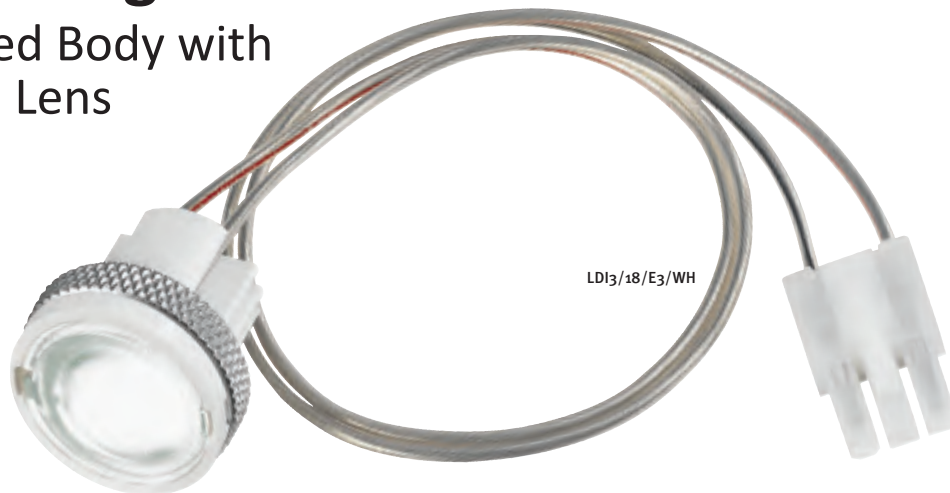
IM418	Integrated module for 1 or 2 x 13W or 18W PL/PLT lamps (requires 4cell battery)
IM526	Integrated module for 1 or 2 x 18W or 26W PL/PLT lamps (requires 5cell battery)
IM642	Integrated module for 1 or 2 x 32W or 42W PL/PLT lamps (requires 6cell battery)
IMK418; IMK526; IMK642	Integrated module kit including 4, 5 or 6 cell 4Ah Nickel Cadmium battery

##### SINGLE/TWIN LAMP INTEGRATED 'SLIMLINE' MODULES

IM540	Integrated ballast/inverter module for 1 or 2 x 40W TCL lamps (requires 5cell; 6.0V 4Ah battery)
IM655	Integrated ballast/inverter module for 1 or 2 x 55W TCL lamps (requires 6cell; 7.2V 4Ah battery)
IM528	Integrated ballast/inverter module for 1 or 2 x 28W T5 lamps (requires 5cell; 6.0V 4Ah battery)
IM535	Integrated ballast/inverter module for 1 or 2 x 35W T5 lamps (requires 5cell; 6.0V 4Ah battery)

# LDI LED Light Pods

## Threaded Body with Integral Lens



A range of LED products are available which utilise the latest high power white LEDs, high quality optical lenses and the appropriate constant current driving circuits.

**Note:** LED generally referred to as 1Watt requires 350mA driver providing typically 90-100Lumens  
 LED generally referred to as 2Watt requires 500mA driver providing typically 100-130Lumens  
 LED generally referred to as 3Watt requires 700mA driver providing typically 130-170Lumens

The **LDI3/18** is a small and very discrete LED with an injection moulded thermally conductive plastic body acting as a very effective heat sink and incorporating an 18mm thread and lock nut for simple installation. **(NB:** Requires 18.5mm clearance hole).

The **LDI3/18/E3** has a unique 3-wire connection allowing operation of the on-board green charge-healthy indicator when the mains supply is healthy and changing to the high output wide angle distribution white LED when the mains fails.

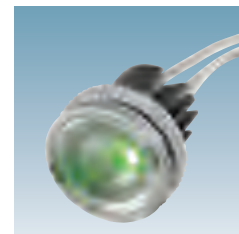
The **LDI3/18/E3** is ideal for use with the **LDCK700S** Non-maintained 500mA miniature emergency lighting kit. (See *LED Drivers and Power Supplies*). **(NB:** The /DALI versions incorporate a GREEN/RED Charge/Fault indicator for DALI and Self-Test applications).

**LDI3/27** is a 3Watt LED of similar design to the LDI3/18 but with a larger 27mm diameter body and a choice of different lenses available to special order. **(NB:** Requires 28.5mm clearance hole).

The 60degree beam angles have proven to be ideal for providing general/emergency floor illuminance with good space to height ratios.



LDI3/27/60



LDI3/18/SL 'Charging'

### Typical emergency lighting spacings for 500mA operation of LDI3/18 and LDI3/27

Mounting height Hm (m)	LDI3/18		LDI3/27/60	
	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape
2.0	7.0	6.5	6.3	5.1
2.5	7.9	7.3	6.9	6.0
3.0	8.6	8.7	6.6	6.6

#### ORDER CODES

*18mm DIAMETER*

**LDI3/18/E3/WH**

**LDI3/18/E3/WH/DALI**

OPTIONS:

*27mm DIAMETER*

**LDI3/27/60**

#### Description

Wide beam angle with integral green charge healthy indicator

As above but with 4-wire connector and b-colour indicator

**/SL** Silver body

60degree beam angle

**NB:** Performance relative to the chosen driver — 350mA, 500mA or 700mA.

# LDR3 LED Light Pods

3 x 1Watt



The **LDR3** combines three high output 1Watt LEDs in a clever reflector/lens assembly providing over 300Lumens in total. The 45degree beam angle intensity distribution will suit most applications providing even illuminance on the floor from a wide range of mounting heights.

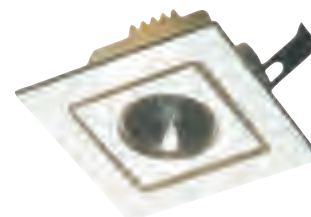
The **LDR3** units are suitable for mounting in most readily available MR16/50Watt Tungsten Halogen luminaires and the design incorporates excellent thermal control ensuring that the LED junction temperatures are kept at optimal levels providing life expectancy of over 40,000hours.

## FEATURES

- Any 50Watt Tungsten Halogen downlight housing can generally be used for mounting triple 1Watt LED light pod
- **LDR3** LED light pods offer 330Lumens from maintained or non-maintained emergency lighting driver units
- Charge healthy indicator can be incorporated in the centre of the LDR3, downlight trim ring or remote driver enclosure
- **LDR3** LED light pods provide precise optical control
- Typical life expectancy for the **LDR3** is 40K hours continuous operation

## SPECIFICATION

Current	350mA
Light source	3 x white LEDs
Power	4.5Watts
Flux	330Lumens
Beam angle	45°



## Emergency lighting maximum spacing

Mounting height Hm (m)	Spacing (m)	
	0.5Lux open area	1Lux escape
2.0	6.0	6.0
2.5	6.5	6.1
3.0	7.2	6.8

## ORDER CODES

## Description

**LDR3/45** 3 x 1Watt LEDs; 45° beam angle

Suffix:

**/E3** Integral charge healthy indicator

# LDE3 and LDE3C

## LED Downlights



LDE3/105/SL Downlight

Where projects require the advantages of low energy/long life LEDs packaged in standard downlight products for plasterboard ceilings and ceiling tiles there are two simple and attractive solutions.

### LDE3 RANGE

The **LDE3** downlight offers 105 degree wide angle lens configuration packaged in a very attractive plastic downlight fixing (silver or white plastic ) via spring clips into a 45mm diameter cut-out.

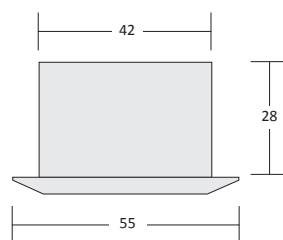
For emergency lighting applications (/E3) a 1mm green charge healthy indicator can be incorporated in the bezel.

### LDE3C (Corridor) RANGE

**LDE3C** LED downlights offer an incredible dissymmetric lens providing a narrow beam across the width of a corridor and extremely wide (batwing) distribution along the length of the corridor. An installation using **LDE3C** downlights can achieve 1Lux minimum on the escape route when spaced at up to 12 metres along a corridor.

**/E3** versions are ideally suited for connection to the **LDCK700/38** non-maintained emergency 'sausage pack' or a remote Maintained pack. (See page 75).

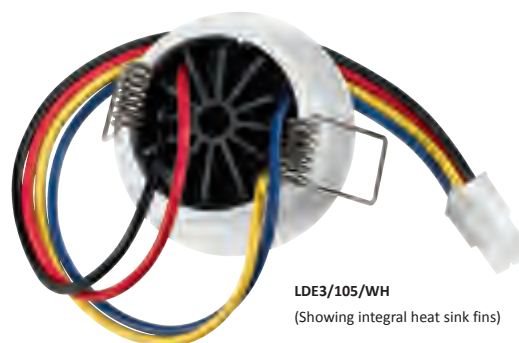
**NB:** For DALI and Self-Test applications the /DALI versions are available with a GREEN/RED charge/fault indicator in the bezel.







LDE3C



LDE3/105/WH  
(Showing integral heat sink fins)

**TYPICAL EMERGENCY LIGHTING SPACINGS  
FOR 100LUMEN OPERATION OF LDE3 and LDE3C CORRIDOR DOWNLIGHT**

Mounting height Hm (m)	LDE3/105		LDE3C	
	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape
2.0	6.9	6.6	n/a	10.0
2.5	7.2	6.9	n/a	10.8
3.0	7.8	8.0	n/a	11.9

**ORDER CODES**

**Description**

LDE3/105/WH	105° beam cone
Suffix:	
/SL	Silver body
/E3	Integral charge healthy indicator
/DALI	As above but with 4-wire connector and bi-colour indicator
LDEC3/WH	Narrow beam dissymmetric lens
Suffix:	
/SL	Silver body
/E3	Integral charge healthy indicator
/DALI	As above but with 4-wire connector and bi-colour indicator

# LD/SM

## Self-contained LED Downlights



### LD/SM/NM3

The **LD/SM** range offers a simple method of providing discreet emergency lighting in areas that require a surface mounted self-contained solution.

Available with a symmetrical wide angle lens or the asymmetrical 'corridor' lens for escape routes the **LD/SM** just requires a permanent 230Volt supply to provide effective non-maintained emergency lighting with 3hour duration.

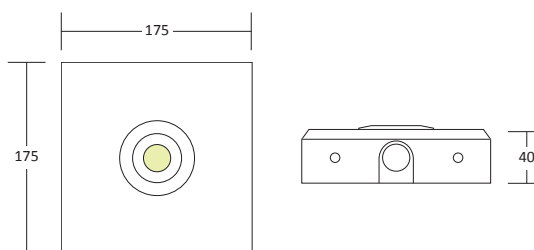
Incorporating the very successful **LDE3** downlight and **LDCK700S** emergency driver kit, the **LD/SM/NM3** range offers a simple self-contained emergency lighting solution from a surface mounted enclosure just 145mm square x 40mm high. When surface mounted on the ceiling the **LD/SM/NM3** is both discreet and attractive. Finished in white as standard (available in other colours to special order) the **LD/SM/NM3** blends in with the other architectural furniture.

The excellent performance allows the units to be mounted at very wide spacings making installation simple and cost effective.

### SPECIFICATION

The **LD/SM/NM3** self-contained units utilise the standard **LDE3** downlights incorporating a thermally managed '3Watt' high power white LED retained in a white polycarbonate housing which matches the white steel facia plate and enclosure. A high brightness green LED is incorporated in the polycarbonate bezel to provide battery charge indication. The enclosure houses a **LDCK700S** module and battery providing 3hour duration, non-maintained emergency lighting.

The **LD/SM/NM3** units have a BESA rear entry and 20mm knock-outs on two sides for surface conduit entry. When the 'Corridor' lens is specified this can easily be rotated in the facia plate to align the distribution along the escape route.





### EMERGENCY LIGHTING SPACINGS

Mounting height Hm (m)	LD/SM/C		LD/SM/105	
	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape	Spacing (m) min 0.5Lux open area	Spacing (m) min 1Lux escape
2.0	n/a	10.0	6.9	6.6
2.5	n/a	10.8	7.2	6.9
3.0	n/a	11.9	7.8	8.0

### ORDER CODES

### Description

<b>LD/SM/C/NM3</b>	White surface mounted, self-contained NM3 with 'Corridor' lens
<b>LD/SM/105/NM3</b>	White surface mounted, self-contained NM3 with wide angle lens
Suffix:	
<b>/DALI</b>	DALI or Self-Test emergency operation

# LED Power Supplies

## Circuit Drivers and Self-contained Kits



**LDCK700S**  
Shown with LD13/18/E3 Light Pod

### POWER SUPPLIES

To complement the ELP LED lighting ranges there are a range of LED driver circuits for mains voltage supplies, distributed 12V and 24V supplies and self-contained emergency lighting packs.

#### **LDCK700S NON-MAINTAINED 500mA MINIATURE KIT.**

Ideal for LDI3/18/E3 light pod (shown)

Driver/charger module and 4.8Volt (4-cell) 1.8Ah AA NiMH battery pack for 3 hour operation of 3Watt (100Lumen) LED lightpods. Battery is connected by a PCB mounted plug.

Module dimensions:-

*130mm (L) x 28mm (W) x 21mm (H)*

Battery dimensions:-

*Two sticks @ 100mm (L) x 15mm (dia.)*

Nickel Metal Hydride (NiMH) batteries are limited to lower operating temperatures than Nickel Cadmium (NiCd) — typically NiMH batteries are limited to an absolute maximum of 50°C; NiCd batteries can withstand continuous temperatures of 55°C.

NiMH batteries also have a shelf life.

It is essential that NiMH batteries are not stored for more than six months.

**LDCK700/38 NON-MAINTAINED 700mA 'SAUSAGE PACK'**

Designed specifically to pass through the cut-outs for the LDE3 downlights the LDCK700/38 non-maintained 'sausage pack' offers simple installation.

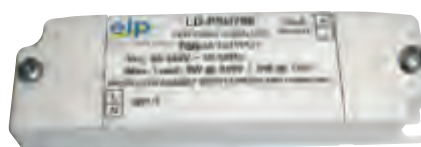
These units comprise the necessary connectors, constant current driver circuit and appropriate battery for 3Watt operation of the LDE3 downlights.

(350mA/1Watt versions also available).



**LDPSU10230 MAINS VOLTAGE DRIVERS (MULTIPLE LEDs)**

350mA and 700mA drivers for multiple (series strings) of 1Watt and 3Watt LEDs.



**LDPSU230 MAINS VOLTAGE DRIVERS**

350mA and 700mA drivers for up to three 1Watt LEDs or single 3Watt LEDs.



**LDPSU312-24 12-24 VOLT DRIVERS**

350mA drivers for up to three 1Watt LEDs or single 3Watt LEDs.

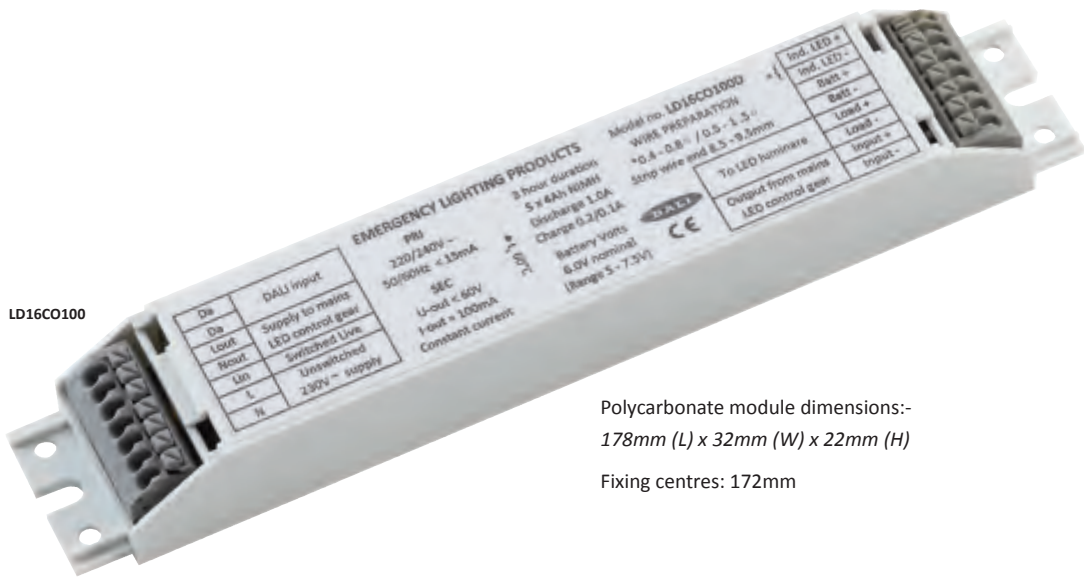
**ORDER CODES**

**Description**

LDCK700/S	Non Maintained 500mA miniature kit
LDCK700/38	Non Maintained 500mA 'sausage pack'
LDPSU230/350	3Watt 350mA 230V driver module
LDPSU230/700	3Watt 700mA 230V driver module
LDPSU10230/350	10Watt 350mA 230V driver module
LDPSU10230/700	10Watt 700mA 230V driver module
LDPSU312-24/350	3Watt 350mA 12-24V driver module

# LD-CO

## High Power LED Emergency Equipment



Polycarbonate module dimensions:-  
 178mm (L) x 32mm (W) x 22mm (H)  
 Fixing centres: 172mm

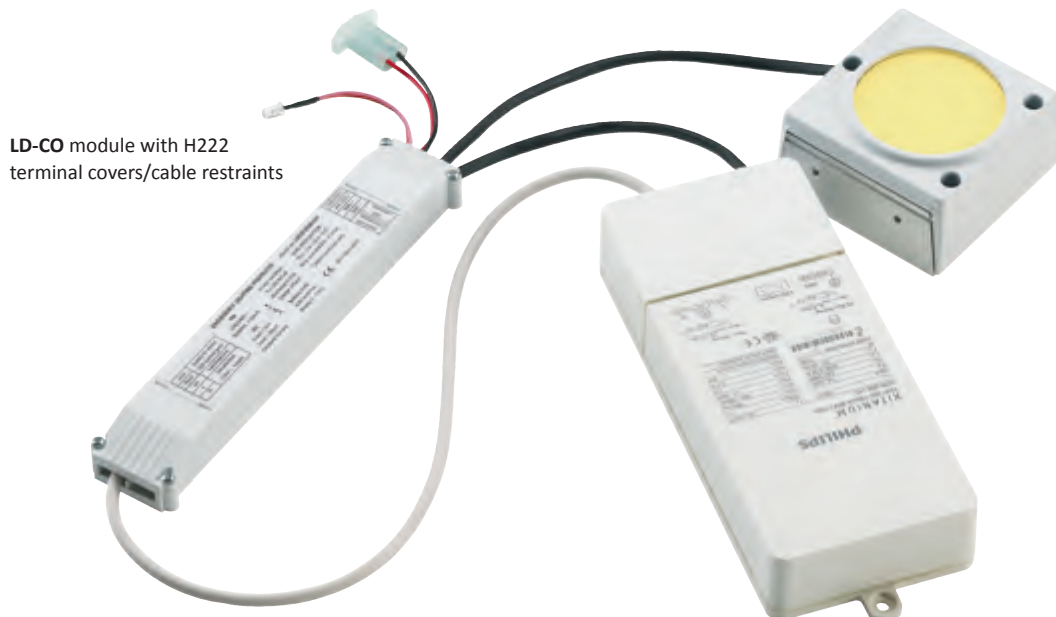
The ELP **LD-CO** emergency LED control gear allows maintained operation of high power LED modules such as the Philips Fortimo DLM & SLM, Xicato range, Bridgelux ES range, Citizen CL-L233-C13N1 etc. by utilising the standard mains voltage LED control gear in-line with the emergency LED control gear. The emergency gear incorporates an emergency LED driver module/charger and an appropriate high temperature battery. In the event of a mains failure, an integral relay disconnects the LED module from the mains control gear and then connects it to the emergency control gear, which operates the LED module at a reduced light output for a duration of 3 hours.

The various high power LED modules utilise different arrays of LED emitters connected in series or a combination of series and parallel. The **LD-CO** range can be configured to suit any of these.

It is very important to note that some of the LED module manufacturers specifically warn not to operate their products on reduced constant current supplies and the design of the **LD-CO** conversion equipment has taken this into account.

The **LD-CO** range of LED conversion units can utilise Pulse Width Modulation on the output driver circuit to provide a constant power output and therefore constant light output from the LED modules.

**NB:** All plastic cased **LD-CO** modules will be supplied with the H222 detachable terminal cover/cable restraint kits.



## SPECIFICATION

Section	Subject	
<b>Environmental</b>	Protection against electric shock	Class 1 SELV equivalent
	Battery rated operating ambient temperature	0 - 50°C
	Maximum case temperature (module)	60°C
<b>Mains operation</b>	Rated voltage supply	220/240 VAC
	Mains frequency	50/60 Hz
	Mains supply current	20mA
	Mains supply power	4.8W
	Power factor	0.6
<b>Emergency Operation</b>	Emergency duration	3 hours
	Battery chemistry type	NiCd or NiMH
	Number / size of cells <b>LD22CO50DLMK, LD9CO100DLMK &amp; LD9CO100K</b>	5 x 2Ah sub-C cells
	<b>LD16CO100DLMK, LD5CO750PWMK &amp; LD6CO300K</b>	5 x 4Ah C cells
	<b>LD9CO450PWMK, LD4CO500K &amp; LD8CO300K</b>	6 x 4Ah C cells
	LED module operating current <b>LD22CO50DLMK</b>	50mA constant current
	<b>LD16CO100DLMK, LD9CO100DLMK &amp; LD9CO100K</b>	100mA constant current
	<b>LD5CO750PWMK</b>	750mA PWM
	<b>LD9CO450PWMK</b>	450mA PWM
BLF/EBLF — dependant on LED module type	0.15 to 0.25	
<b>Mechanical</b>	Electrical connections	Push wire terminals
<b>Standards compliance</b>	EN61347-1, EN61347-2-7 & EN61347-2-13 EN62384	Yes
	EN60598-2-22 (clauses 22.6.7, 22.6.9, 22.6.10, 22.6.11, 22.6.12, 22.6.13, 22.17, 22.18)	Yes
	EN55015	Yes
	EN61547	Yes
	EN61000-3-2	Yes
	<b>DAI and ST versions</b> EN62034	Yes
	EN62386-101	Yes
	EN62386-102	Yes
	EN62386-103	Yes

Note: Values are subject to change

Nickel Metal Hydride (NiMH) batteries are limited to lower operating temperatures than Nickel Cadmium (NiCd) — typically NiMH batteries are limited to an absolute maximum of 50°C; NiCd batteries can withstand continuous temperatures of 55°C. NiMH batteries also have a shelf life. It is essential that NiMH batteries are not stored for more than six months.

## ORDER CODES FOR STANDARD LD-CO (Non-DALI) KITS

To ensure the correct operation of each type of high power LED module the **LD-CO** equipment should be configured to suit the correct type of array.

Therefore the codes include the number of LED or LED strings connected in series e.g. LD5, for 5 series strings; LD16 for 16 series strings. The code also includes reference to the operating current e.g. **LD5CO750** for 750mA.

The following codes should be used to order the appropriate module and battery for the following LEDs:

Philips Fortimo 3000 & 2000lumen DLM	<b>LD22CO50DLMK</b>
Philips Fortimo 1100lumen DLM & SLM	<b>LD9CO100DLMK</b>
Xicato XSM Range and Citizen CL Range	<b>LD9CO100K</b>
Xicato XSM Range 2000-3000 lumens and Cree CXA2011	<b>LD16CO100K</b>
Xicato XSM Range 400-1300 lumens (High Output)	<b>LD8CO300K</b>
Mid-voltage LED arrays	<b>LD6CO300</b>
Lower-voltage LED arrays	<b>LD4CO500</b>
Bridgelux ES Range 400-1200 lumens	<b>LD5CO750PWMK</b>
Bridgelux ES Range 1800-2500 lumens	<b>LD5CO450PWMK</b>

ALL LD-CO UNITS REQUIRE MAINS LED CONTROL GEAR FOR MAINTAINED OPERATION

# LDpro

## Emergency Equipment with DALI and Self-Test

The standard high power **LD-CO** Conversion Kits offer a solution for the emergency lighting operation of any high power LED 'light engine' or LED array including Fortimo, Xicato, Infusion, Talex, Cree etc.

Where Self-Test or fully interoperable DALI is required the **LDpro** modules should be specified.

The **LDpro** range offers the same low-profile charger/inverter module as the standard **LD-CO** with High temperature Nickel Cadmium or Nickel Metal Hydride batteries to suit the application.

**LDpro** modules are available with or without cable restraints providing an ideal solution for use as built-in or independent control gear.

The modules feature integral change-over relays allowing the **LDpro** to be wired into the standard mains driver circuit. The **LDpro/DLM** versions have on board multi-way connectors to allow the use of standard Philips Fortimo cable assemblies avoiding the need to cut into any of the existing Fortimo cabling.

### LDpro DALI or SELF-TEST

The **LDpro** module includes fully tested and approved DALI control/reporting. Fully integrated components and the latest software ensure that the **LDpro** equipment can be connected to any approved DALI control system.

As with other ELP **proSeries** modules, when the mains supply is initially connected, the **LDpro** initiates the Self-Test commissioning mode and then activates the weekly and annual test routine starting at random times to ensure tests do not get carried out simultaneously in the same areas. Faults such as charge failure, battery failure, etc. will be indicated locally immediately and the fault indication will be automatically cleared once the fault is rectified. The **LDpro** module will continually be prepared for a DALI signal even when operating in Self-Test mode. If a DALI signal is received the Self-Test mode will be disabled and the module will adopt full DALI mode which means **LDpro** modules can be connected to a DALI system at anytime when they can then be addressed and form part of the DALI installation immediately.

As with all ELP equipment the **LDpro** modules are designed for ease of installation offering compact dimensions and push-wire terminals.

**NB:** All plastic cased **LDpro** modules will be supplied with the H222 detachable terminal cover/cable restraint kits.

### ORDER CODES GUIDE for LDpro — DALI/Self-Test

Philips Fortimo 3000 & 2000 lumen DLM	<b>LDpro 22CO50DLM</b>
Philips Fortimo 1100 lumen DLM & SLM	<b>LDpro 9CO100DLM</b>
Xicato XSM Range and Citizen CL Range	<b>LDpro 9CO100DK</b>
Cree CXA2011	<b>LDpro 16CO100DK</b>



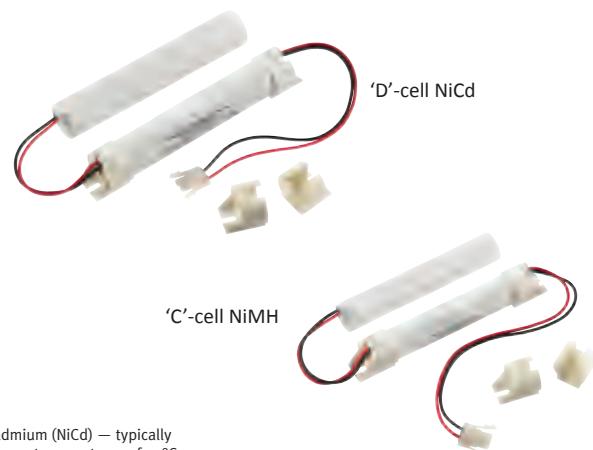
H222 terminal cover/cable restraint

### DETAILED ORDER CODES for LDpro — (DALI/Self-Test) Kits

<b>LD9CO100K/DALI</b>	6.0Volt; 5 x 2Ah cells
<b>LD9CO100K/NiMH/DALI</b>	6.0Volt; 5 x 2Ah cells
<b>LD16CO100K/DALI</b>	6.0Volt; 5 x 4Ah cells
<b>LD16CO100K/NiMH/DALI</b>	6.0Volt; 5 x 4Ah cells
<b>LD9CO100DLMK/DALI</b>	6.0Volt; 5 x 2Ah cells
<b>LD9CO100DLMK/NiMH/DALI</b>	6.0Volt; 5 x 2Ah cells
<b>LD22CO50DLMK/DALI</b>	6.0Volt; 5 x 2Ah cells
<b>LD22CO50DLMK/NiMH/DALI</b>	6.0Volt; 5 x 2Ah cells
<b>LD6CO300K/DALI</b>	6.0Volt; 5 x 4Ah cells
<b>LD6CO300K/NiMH/DALI</b>	6.0Volt; 5 x 4Ah cells

**Note:** **LDpro** kits are supplied as standard with NiCd batteries. For NiMH battery versions please quote NiMH Codes.

Nickel Metal Hydride (NiMH) batteries are limited to lower operating temperatures than Nickel Cadmium (NiCd) — typically NiMH batteries are limited to an absolute maximum of 50°C; NiCd batteries can withstand continuous temperatures of 55°C. NiMH batteries also have a shelf life. It is essential that NiMH batteries are not stored for more than six months.



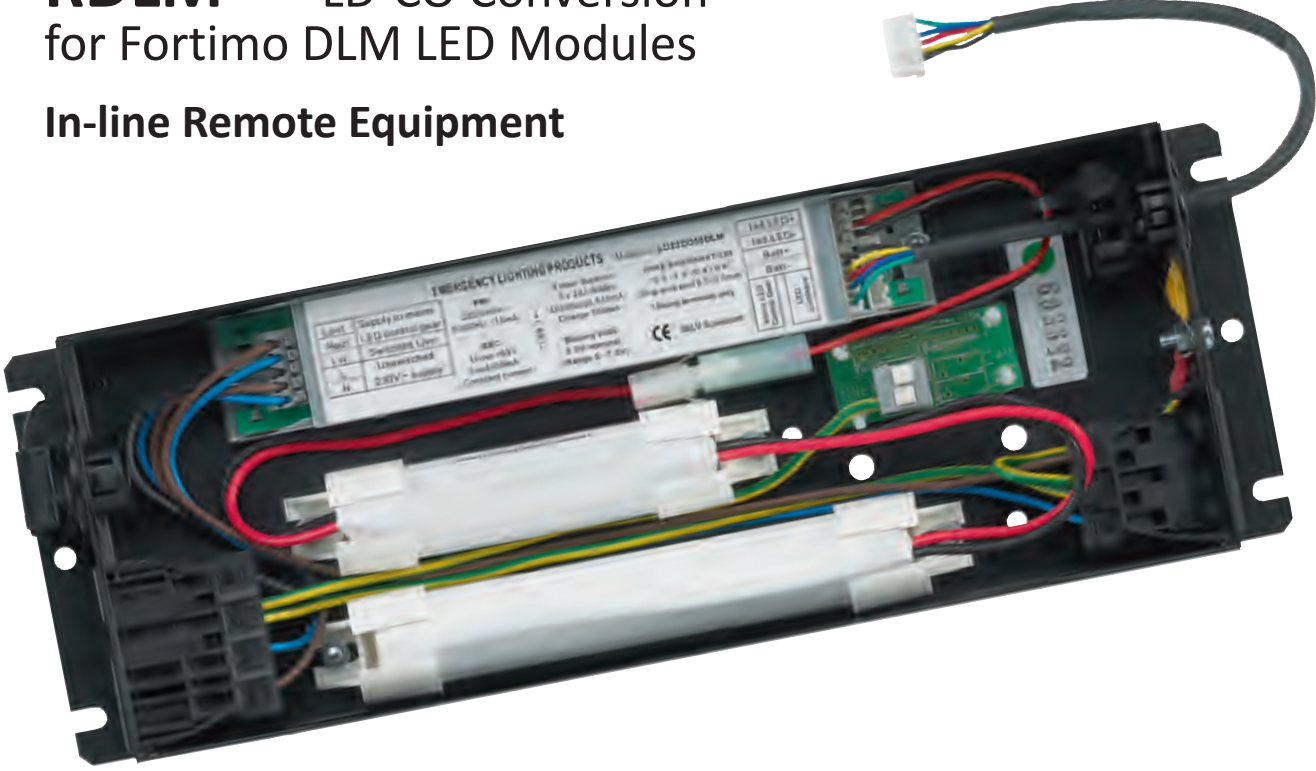




Polycarbonate module dimensions:-  
178mm (L) x 32mm (W) x 22mm (H)  
Fixing centres: 172mm

# RDLM — LD-CO Conversion for Fortimo DLM LED Modules

## In-line Remote Equipment



The ELP **LD-CO** LED conversion equipment can be supplied for 'in-line' connection with the standard Fortimo DLM mains driver allowing maintained operation of Fortimo luminaires. To retain the original Fortimo connection system the ELP Remote DLM emergency box includes an interface PCB in addition to the **LD-CO** conversion kit.

Therefore, the **LD16CO100RDLM** provides simple connection to the standard mains driver for the Philips Fortimo DLM and incorporates an **LD-CO** emergency control module, battery and interface PCB. The complete unit complies with international safety and performance standards.

In the event of a mains failure, an integral relay disconnects the LED module from the independent mains control gear and then connects it to the emergency control gear operating the LED module at a reduced light output for a duration of 3 hours.

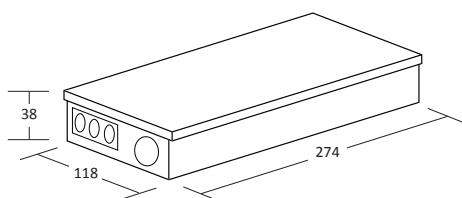


ELP Emergency Remote Pack connected to Philips Independent Mains Control Gear

## SPECIFICATION

Section	Subject	Metal housed module
Environmental	Protection against electric shock	Class 1
	<b>Ingress protection</b>	<b>IP20</b>
	Rated operating ambient temperature	0 to 30°C
	Maximum case temperature	40°C
Mains operation	Rated voltage supply	220/240 VAC
	Mains frequency	50/60 Hz
	Earth leakage current	<0.5mA
	Mains supply current	20mA
	Mains supply power	4.8W
	Power factor	0.9
Emergency operation	Emergency duration	3 hours
	Number and type of cells	5 x 4Ah 'C' NiMH cells
	Battery recharge period	<24 hours
	Battery charging — nominal	200mA
	Battery discharge current — nominal	1.0A
	Stabilised LED drive current Short circuit protected	100mA DC
	Output voltage — maximum	65V DC
	BLF/EBLF	0.21/0.21
Mechanical	Outside dimensions	L274mm x W118mm x H38mm
	Mains input	Switched L, Unswitched L, Earth & N
	Mains output	Switched L, Earth & N
	Cable to mains LED control gear	7 way JST PA connector

**Note:** Values are subject to change



### ORDER CODES

**LD16CO100RDLM**

Suffix: /DALI

### Description

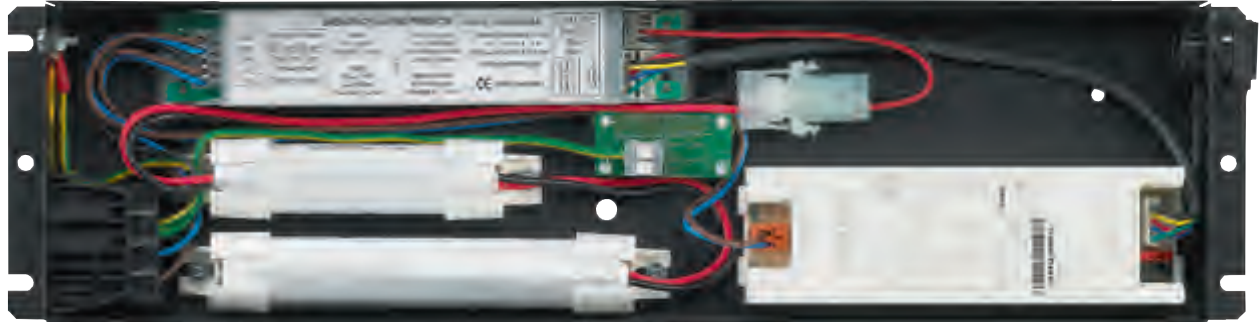
Fortimo DLM emergency remote pack

for DALI or Self-Test versions

**NOTE: THE FORTIMO DLM EMERGENCY REMOTE PACK REQUIRES MAINS CONTROL GEAR FOR MAINTAINED OPERATION**

# IDLM — LD-CO Conversion for Fortimo DLM LED Modules

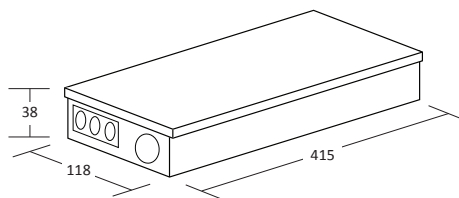
## Integrated Fully Remote Equipment



The ELP **LD-CO** LED conversion equipment can be supplied for 'in-line' connection with the standard Fortimo DLM mains driver allowing maintained operation of Fortimo luminaires. To retain the original Fortimo connection system the ELP Remote DLM emergency box includes an interface PCB in addition to the **LD-CO** conversion kit.

Therefore, the **LD16CO100RDLM** provides simple connection to the standard mains driver for the Philips Fortimo DLM and incorporates an **LD-CO** emergency control module, battery and interface PCB. The complete unit complies with international safety and performance standards.

In the event of a mains failure, an integral relay disconnects the LED module from the independent mains control gear and then connects it to the emergency control gear operating the LED module at a reduced light output for a duration of 3 hours.





## SPECIFICATION

Section	Subject	Metal housed module
Environmental	Protection against electric shock	Class 1
	Ingress protection	IP20
	Rated operating ambient temperature	0 to 30°C
	Maximum case temperature	40°C
Mains operation	Rated voltage supply	220/240 VAC
	Mains frequency	50/60 Hz
	Earth leakage current	<0.5mA
	Stabilised LED drive current	200 - 700mA
	Power factor	0.9
Emergency operation	Emergency duration	3 hours
	Number and type of cells	5 x 4Ah 'C' NiMH cells
	Battery recharge period	<24 hours
	Battery charging - nominal	200mA
	Battery discharge current - nominal	1.0A
	Stabilised LED drive current Short circuit protected	100mA DC
	Output voltage - maximum	65V DC
	BLF/EBLF	0.21/0.21
Mechanical	Outside dimensions	L415mm x W118mm x H38mm
	Mains input	Switched L, Unswitched L, Earth & N
	Cable to LED module	7 way JST PA connector

**Note:** Values are subject to change

## ORDER CODES

LD16CO100IDL

Suffix: /DALI

## Description

Fortimo DLM Integrated remote pack

for DALI or Self-test versions

# LMpro

## Maintained Low Power LED Emergency Equipment

The **LMpro** Kits provide maintained (mains and emergency operation) of either one or two LEDs connected in series.

Where a single mains/emergency driver is required with Self-Test or fully interoperable DALI the **LMpro** modules should be specified.

The **LMpro** range offers a low-profile charger/ inverter module with High temperature Nickel Cadmium or Nickel Metal Hydride batteries to suit the application. (sub-C cell NiCd batteries are supplied as standard).

**LMpro** modules are available with or without cable restraints providing an ideal solution for use as built-in or independent control gear. The modules feature high quality constant current driver circuits and integral change-over from the normal mains driver circuit to emergency operation whenever the permanent live supply is lost.

### LMpro DALI or SELF-TEST

The **LMpro** module includes fully tested and approved DALI control/reporting. Fully integrated components and the latest software ensure that the **LMpro** equipment can be connected to any approved DALI control system.

All ELP **proSeries** modules feature software that permanently 'listens' for DALI signals. With no DALI signal present during initial connection the modules will operate in Self-Test automatically initiating a commissioning mode and then at random times commencing the weekly and annual tests in accordance with EN62034. The built-in real time intelligence ensures that faults such as charge failure, battery failure, etc. will be indicated immediately. However, the **LMpro** module will continually be prepared for a DALI signal which, if received, will result in the Self-Test mode being disabled and the module reverting to the DALI protocol. This means that the **LMpro** module can be connected to a DALI system at anytime and the module can then be addressed and form part of the DALI installation immediately.

As with all ELP equipment the **LMpro** modules are designed for ease of installation offering compact dimensions and push-wire terminals.

**NB:** All plastic cased **LMpro** modules will be supplied with the H222 detachable terminal cover/cable restraint kits.





Polycarbonate module dimensions:-  
178mm (L) x 32mm (W) x 22mm (H)  
Fixing centres: 172mm

### Order Codes for LMpro – DALI/Self-Test

	<b>MODULE:</b>	<b>BATTERIES:</b>
1 x LED at 350mA	<b>LMpro</b> M350K	(3.6Volt; 3 x 2Ah cells)
1 x LED at 500mA or 2 x LED at 350mA	<b>LMpro</b> M500K	(4.8Volt; 4 x 2Ah cells)
1 x LED at 700mA	<b>LMpro</b> M700K	(6.0Volt; 5 x 2Ah cells)

Nickel Metal Hydride (NiMH) batteries are limited to lower operating temperatures than Nickel Cadmium (NiCd) – typically NiMH batteries are limited to an absolute maximum of 50°C; NiCd batteries can withstand continuous temperatures of 55°C. NiMH batteries also have a shelf life. It is essential that NiMH batteries are not stored for more than six months.

# THK

## LV Conversion Equipment



THK/NM3/50

The **THK** range offers a choice of low voltage power packs for the operation of LV Tungsten Halogen or LED downlights.

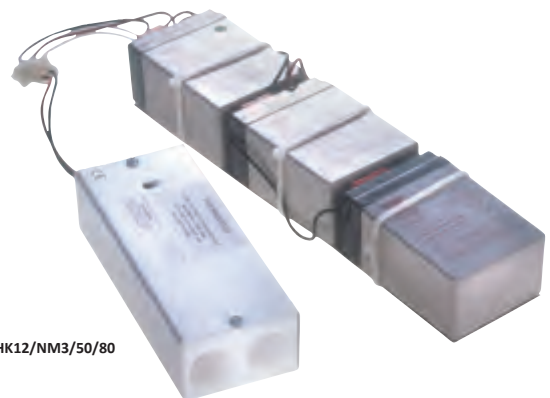
The range includes a single enclosure unit (suitable for applications where access is not limited), a two piece version allowing the whole unit to be passed through an 80mm diameter ceiling cut-out and multi-piece versions (PTH) for 65mm cutouts (6volt) and 120mm cut-outs (12volt).

All **THK** units utilise high quality 5year life Valve Regulated Lead Acid batteries and can be supplied with or without a mains transformer for normal switchable lighting.

### OPERATION

The **THK** units can be used for non-maintained or maintained operation and versions are available complete with electronic transformer for normal switched lighting. The standard units provide a 6volt emergency supply to under-run the lamp which improves uniformity in the emergency lighting application (avoids uneven 'light/dark/light' illuminance along the escape route). Full output 12volt versions are also available.

**THK** units fully comply to the relevant parts of EN60598.2.22



THK12/NM3/50/80





## TECHNICAL DETAILS

	Main Housing (mm)	Remote battery and M3 transformer (mm)	Weight (Kg)
<b>SINGLE ENCLOSURE VERSIONS (6VOLT)</b>			
THK/NM3/50	260(H) x 190(W) x 75(D)		4.9
THK/M3/50	260(H) x 190(W) x 75(D)		5.0
<b>SINGLE ENCLOSURE VERSIONS (12VOLT)</b>			
THK12/NM3/50	350(H) x 310(W) x 115(D)		5.0
THK12/M3/50	350(H) x 310(W) x 115(D)		5.2
THK12/NM3/75	350(H) x 310(W) x 115(D)		5.4
THK12/M3/75	350(H) x 310(W) x 115(D)		5.6
<b>12V MULTI-PIECE VERSION FOR 120mm CUT-OUTS (12VOLT)</b>			
THK12/NM3/50/120	188(L) x 98(W) x 60(H)	2 off 150(L) x 95(W) x 65(H)	5.1
THK12/M3/50/120	As above	— plus transformer — 120(L) x 40(W) x 30(H)	5.3
<b>TWO PIECE VERSION FOR 80mm CUT-OUTS (6VOLT)</b>			
THK/NM3/20/80	200(L) x 48(W) x 45(H)	240(L) x 50(W) x 70(H)	4.0
THK/M3/20/80	As above	— plus transformer — 120(L) x 40(W) x 30(H)	4.2
THK/NM3/50/80	200(L) x 48(W) x 45(H)	360(L) x 50(W) x 70(H)	4.2
THK/M3/50/80	As above	— plus transformer — 120(L) x 40(W) x 30(H)	4.4
<b>MULTI-PIECE VERSION FOR 65mm CUT-OUTS (6VOLT)</b>			
PTH/NM3/50/65	200(L) x 50(W) x 50(H)	3 off 195(L) x 24(W) x 63(H)	4.2
PTH/M3/50/65	As above	— plus transformer — 100(L) x 40(W) x 25(H)	4.4



## ORDER CODES

## Description

### SINGLE ENCLOSURE VERSION (6VOLTS)

THK/NM3/50	Non-maintained; up to 50 watt lamps at 6 volts for 3 hours
THK/M3/50	As above but with integral 12 volt transformer

### SINGLE ENCLOSURE VERSION (12VOLTS)

THK12/NM3/50	Non-maintained; up to 50 watt lamps at 12 volts for 3 hours
THK12/M3/50	As above but with integral 12 volt transformer
THK12/NM3/75	Non-maintained; up to 75 watt lamps at 12 volts for 3 hours
THK12/M3/75	As above but with integral 12 volt transformer

### MULTI-PIECE VERSION FOR 120mm CUT-OUTS (12VOLTS)

THK12/NM3/50/120	Non-maintained; up to 50 watt lamps at 12 volts for 3 hours
THK12/M3/50/120	As above but with integral 12 volt transformer

### TWO PIECE VERSION FOR 80mm CUT-OUTS (6VOLTS)

THK/NM3/20/80	Non-maintained; up to 20 watt lamps at 6 volts for 3 hours
THK/M3/20/80	As above but with integral 12 volt transformer
THK/NM3/50/80	Non-maintained; up to 50 watt lamps at 6 volts for 3 hours
THK/M3/50/80	As above but with integral 12 volt transformer

### MULTI-PIECE VERSION FOR 65mm CUT-OUTS (6VOLTS)

PTH/M3/50/65	Maintained; up to 50 watt lamps at 6 volts for 3 hours with integral 'plug-in' 12 volt transformer
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# PS-RS02

## Microwave Motion Detector



The **PS-RS02** sensor is an active motion detector with adjustable sensitivity, daylight detection and 'On' period. The detector emits high-frequency electro-magnetic energy (5.8GHz) and receives the echo from movements in the detection zone. An internal microprocessor then triggers and connects the load to the supply ('On' command).

The advantage of Microwave detectors is that movement can be detected at quite long distances (up to 10metres) and is possible through thin metal and typical materials used in buildings (office partitions, etc.).

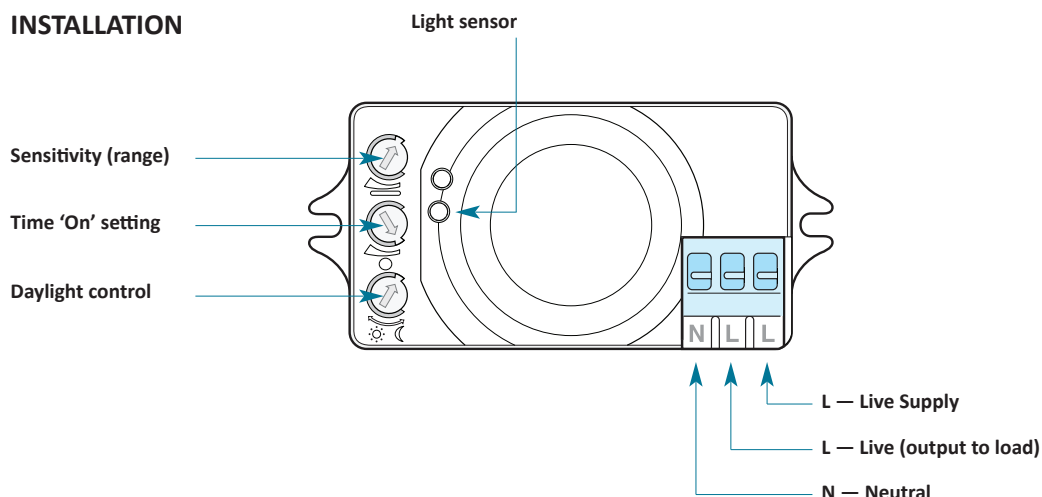
Microwave detectors are ideal for switching lighting load and can be used for switching lights on or (by using dimming ballasts) from a dimmed level to full output when someone enters an area.

While there is movement in the area, the sensor will hold the load on. The sensor can be adjusted so that when movement stops the load will switch off (or return to dimmed level) after 8seconds to 12minutes.

### GENERAL SPECIFICATION

Supply voltage	230V 50Hz
Transmission system	5.8GHz CW radar, ISM band
Transmission output	<0.2mW
Maximum load	1200W (resistive) 600W (inductive)
Detection angle	360°
Range (Clear area)	2-10m adjustable
'ON' period	8sec to 12 min
Lux detection	2-2000 Lux
Parasitic load	0.5W typical
Dimensions	75mm (L) x 42mm (W) x 44mm (H)
Fixing centres (Lugs)	84mm

## INSTALLATION



### Setting sensitivity (range)

The range is the distance of the circular detection zone produced on the ground in an open area adjacent to where the **PS-RS02** sensor is mounted.

**Minimum range** — (approx. 2m) — is achieved with the sensitivity control turned fully anti-clockwise.

**Maximum range** — (approx. 10m) — is set with the control turned full clockwise.

**Note:** The above detection distances are based on a person who is between 1.6m/1.7m tall moving at a speed of 0.6 – 1.5m/sec. Detection range will differ depending on the height and stature of a person moving within the detection zone and reduced if detecting movement through building structures (glass, partitions, etc.).

### Time 'On' setting

The luminaire can be set to stay ON for any period of time between approx. 8 sec (control turned fully anti-clockwise) and a maximum of 12min (control turned fully clockwise).

Any movement detected before the set time has elapsed will re-start the timer therefore holding the lighting on.

**Note:** After the light switches OFF, it takes approx. 1 sec before the sensor will start detecting movement again.

### Daylight control setting

The light response threshold can be adjusted from approx. 2 Lux to 2000 Lux. Rotate the control fully anti-clockwise to select dusk-to-dawn operation at about 2 lux. Turn it fully clockwise to select daylight operation at about 2000 lux.

### Set-up/walk test

Set the Time 'on' control to minimum (fully anti-clockwise) and the Daylight control to maximum (fully clockwise) to adjust the sensitivity / range. Adjust the Sensitivity control, walk in the required detection area then re-adjust until the area is correctly monitored. Then adjust the daylight control to suit an appropriate ambient light level and finally set the 'on' time

**(NB:** with fluorescent lamps it is advisable to let them operate for approx. 10minutes from each start).

**Note:** Adjust the rotational controls with care because the three potentiometers are connected directly to a PCB.

The 'stops' built into each of these components can easily be damaged.

## ORDER CODES

PS-RS02

## Description

Microwave motion detector

# PS-SS200

## Infrared Sensor



The **PS-SS200** sensor is an active motion detector with adjustable sensitivity, daylight detection and 'On' period. The detector utilises an infrared sensor to detect thermal movement within the detection zone. An internal micro-processor then triggers and connects a Live supply to the lighting loads connected to the detector ('On' command).

The **PS-SS200** infrared detector is designed for installation in ceilings up to 3.5metres high and movement can be detected within quite large detection zones (up to 10metres diameter).

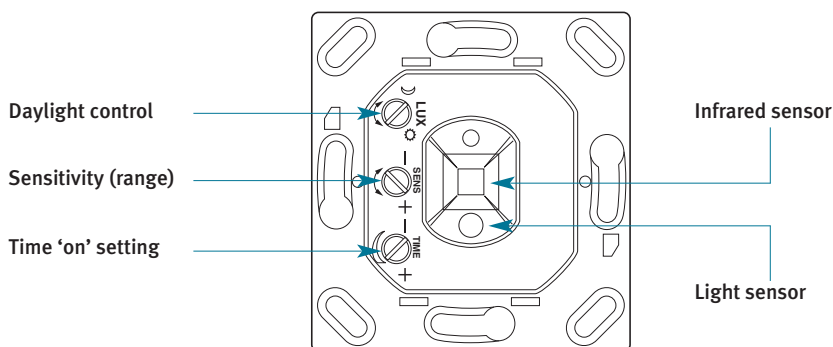
The **PS-SS200** infrared detector is ideal for switching one or more lighting loads local to the detector when someone enters an area.

While there is movement in the area, the sensor will hold the load on. The sensor can be adjusted so that when movement stops the load will switch off after 8seconds to 12minutes.

### GENERAL SPECIFICATION

Supply voltage	230V 50Hz
Transmission system	Infrared
Transmission output	<0.5W
Maximum load	1200W (resistive) 600W (inductive)
Detection angle	360°
Range (Clear area)	2 - 10m adjustable
'ON' period	8sec to 12 min
Lux detection	2 - 2000 Lux
Ambient conditions	-10-40°C
Dimensions	Ceiling plate: 105mm dia Recess depth: 40mm Ceiling cut-out: 60mm dia
Fixing	M4 keyhole slots

## INSTALLATION



### Setting sensitivity (range)

The range is the distance of the circular detection zone produced on the ground in an open area adjacent to where the **PS-SS02** sensor is mounted.

**Minimum range** — (approx. 2m) — is achieved with the sensitivity control turned fully clockwise.

**Maximum range** — (approx. 10m) — is set with the control turned full anti-clockwise.

**Note:** The above detection distances are based on movement at a speed of 0.6 – 1.5m/sec.

### Time 'On' setting

The luminaire can be set to stay ON for any period of time between approx. 8sec (control turned fully clockwise) and a maximum of 12min (control turned fully anti-clockwise).

Any movement detected before the set time has elapsed will re-start the timer therefore holding the lighting on.

**Note:** After the light switches OFF, it takes approx. 1sec before the sensor will start detecting movement again.

### Daylight control setting

The light response threshold can be adjusted from approx. 2Lux to 2000Lux. Rotate the control fully clockwise to select dusk-to-dawn operation at about 2lux. Turn it fully anti-clockwise to select daylight operation at about 2000lux.

### Set-up/walk test

Set the Time 'on' control to minimum (fully clockwise) and the Daylight control to maximum (fully anti-clockwise) to adjust the sensitivity/range. Adjust the Sensitivity control, walk in the required detection area then re-adjust until the area is correctly monitored. Then adjust the daylight control to suit an appropriate ambient light level and finally set the 'on' time.

**(NB:** with fluorescent lamps it is advisable to let them operate for approx. 10 minutes from each start).

**Note:** Adjust the rotational controls with care because the three potentiometers are connected directly to a PCB.

The 'stops' built into each of these components can easily be damaged.

## ORDER CODES

PS-SS200

## Description

Infrared motion detector

# Testing Systems



STM module dimensions:-  
168mm (L) x 39mm (W) x 27mm (H)

Fixing centres: 160mm

Independent Self-test module:- STM

There are two main methods of automatic testing for emergency products, **SELF-TEST** and **CENTRAL TEST**.

Conversion of mains luminaires and most of the standard luminaire products can be supplied with **SELF-TEST** or **CENTRAL TEST** options. These systems offer several benefits to the building owner/tenant and provide real financial savings over the life of the emergency lighting installation.

## VERSIONS

**SELF-TEST** versions should comply with the requirements of EN62034.

Generally, the equipment incorporates a micro-processor which initiates functional tests monthly and full duration tests annually.

ELP offers the **STM** independent self-test module (*also see proSeries DALI and Self-Test equipment. Pages 64, 78 and 84*).

The **STM** intelligent module carries out a sequence of diagnostic tests and indicates any failure by a flashing amber LED and an intermittent buzzer.

The **SELF-TEST** versions need no additional wiring and provide a simple and effective method of meeting the test requirements of BS5266.

**CENTRAL TEST** emergency lighting facility can be offered via the DALI lighting control system or via a bespoke Central Test panel and addressable modules. The ELP Validate based system requires the luminaires to incorporate an additional addressable module connected via a shielded pair of data cables.

The central panel can be programmed to initiate tests at set times and dates and any failures are reported back at the panel. Each luminaire has a unique address and therefore the information provided at the panel can clearly indicate the type of luminaire, its position within the installation and the type of fault.

For larger installations this avoids the time wasted walking the site assessing the status of the emergency lighting luminaires and is an ideal method of meeting the test requirements of BS5266.



## ORDER CODES

Testing systems are normally associated with larger projects and our sales staff will be happy to provide advice on how **SELF-TEST** or **CENTRAL TEST** can be incorporated into the selected range of luminaires. Generally **SELF-TEST** will be available in any standard product and the suffix: **/ST** will indicate that a self test version is required.

Most products can have DALI/Self-Test where the intelligent module will automatically provide Self-Test unless a DALI signal is connected. Where a DALI signal is connected the module will automatically form part of the DALI system with the function capability of being addressed by the DALI software.

Luminaires required for connection with our **CENTRAL TEST** system should be ordered with the Suffix: **/CT**

# Central Systems



A wide range of Central Battery Units and Static Inverter Units are available to suit specific project demands. All units utilise high quality ten year life Valve Regulated Lead Acid batteries or low maintenance twenty five year life Vented Nickel Cadmium batteries and the systems are specifically designed for emergency lighting applications.

Slave versions of the standard luminaire range can be ordered plus standard mains luminaires can be converted for connection to Central Systems by using the 50volt and 110volt slave inverters.

## SLAVE INVERTERS

**TCB50 & TCB110:** Conversion module compatible with all standard mains ballasts. TCB modules require an un-switched 230volt supply to monitor the local sub-circuit. These units may be connected to 50 or 110 volt maintained or non-maintained AC/DC central battery units and will operate any standard fluorescent lamp in the range 4-70Watts.

**HCB50 & HCB110:** Slave inverter module requiring an un-switched 230volt supply to monitor the local sub-circuit. These units may be connected to 50 or 110 volt maintained AC/DC central battery units and will operate any standard fluorescent lamp in the range 4-70Watts.

**CCB50 & CCB110:** Slave inverter module for connection to 50 or 110volt non-maintained AC/DC central battery units (or for continuous operation from a maintained AC/DC system). These inverters will operate any standard fluorescent lamp in the range 4-70Watts.

## CHANGE-OVER CONTACTOR

For installations utilising a number of the mains luminaires connected to a static inverter to provide both mains and emergency lighting it is vitally important to introduce a change-over contactor for the two incoming 230volt AC supplies (normal switched and static inverter).

**SIM240:** Change-over contactor. (See page 96).



# SafePower

## Static Inverters



The **SafePower** range offers a choice of mini static inverter power supplies for the operation of a wide range of mains voltage lighting equipment (e.g. mains voltage GLS & compact fluorescent lamps, small HID, LED etc.). The **SafePower** units are supplied with robust enclosures and utilise high quality 5year life Valve Regulated Lead Acid batteries. The mini static inverters can be supplied with maintained outputs or used solely as standby supplies.

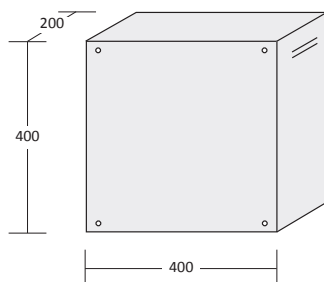
### VERSIONS

'**PS**' models offer Pure Sine Wave outputs suitable for all electronic transformers, switch-mode power supplies etc.

'**SI**' models utilise a modified Sine Wave output suitable for tungsten loads, wire wound transformers and any standard 'resistive' loads.

The maximum rated loads are based on the full circuit VA of the equipment connected.

(**Example:** a 3Watt LED connected to a typical mains driver will have a circuit load of app. 7VA).



### OPERATION

**SafePower** units can be used for non-maintained or maintained operation of the mains voltage equipment depending on type and rating of the load. The standard '**PS**' unit offers a 220/240Volt 50Hz output with 3hour duration for any mains voltage load up to 150VA.

For simple tungsten (standard resistive) loads the simpler '**SI**' version can be used with the associated cost saving.

All **SafePower** units incorporate long life Valve Regulated (sealed) Lead Acid batteries. These are charged from a high quality constant voltage battery charger which includes a battery low voltage disconnect circuit to protect the battery from deep discharge. The mains voltage output is created via a solid state step-up inverter circuit with Pure Sine Wave output for the '**PS**' version and a modified Sine Wave for the '**SI**' versions.

**SafePower** units are designed to comply with the relevant sections of BS EN50172 and BS EN 60598.2.22.

Loads should be connected directly to the maintained **SafePower** units. If a **SafePower** unit is to be used to back-up equipment already connected to a separate mains supply then the two incoming supplies (mains and **SafePower**) must be segregated by a change-over relay like the ELP SIM240.



## OUTLINE SPECIFICATION

<b>MAINS INPUT</b>	
Nominal input voltage	230V $\pm$ 10%
Nominal input frequency	50Hz $\pm$ 5%
Power consumption	Non-maintained = 60W maximum Maintained = 210W maximum with a full maintained load of 150W
<b>BATTERY</b>	
Type	5-year design life valve regulated lead acid (VRLA)
Voltage	12V
Ampere-hour capacity	48AH (20-hour rate to 1.75 volts per cell at 20°C) comprised of 4 x 12V 12AH monoblocs connected in parallel
<b>INVERTER INPUT</b>	
DC input voltage	12V nominal
DC input voltage range	10 to 15V DC
Low battery alarm	10.5V $\pm$ 0.5V
Low battery shut-down	10V $\pm$ 0.5V
<b>OUTPUT (INVERTER)</b>	
Nominal output voltage	230V AC
Regulation	$\pm$ 10%
Inverter output frequency	50Hz $\pm$ 1%
Inverter wave shape	'PS' Pure sinewave 'SI' Modified sinewave
Rating	150VA Maximum 150W Maximum
Load power factor	0.8 inductive – 0.8 capacitive within its maximum VA and Watts ratings
Over temperature protection	55°C $\pm$ 5°C
Overload protection	Yes
Short circuit protection	Yes
<b>GENERAL</b>	
Cubicle type	Wall Mounting (IP20)
Inverter Efficiency	90% at full load
Noise	<60dBA at 1-metre
Temperature range	10-30°C

### ORDER CODES

**PS/150/M3**

**SI/150/M3**

### Description

Maintained — max. load 150VA for 3 hours (Pure Sine)

Maintained — max. load 150VA for 3 hours (Modified Sine)

# Sim240 Static Inverter Module

## Change-over for Central Supplies



On medium to large projects it can be advantageous to provide emergency lighting using a static inverter connected to a number of the existing mains luminaires.

In these installations it is necessary for the normal supply and the static inverter supply to be selected by an automatic switching device within or external to the luminaire. Some suppliers offer a standard 230V AC change-over relay for this purpose but this ignores the fact that a free running static inverter is not tied to the grid frequency and will therefore be out of phase or in a worst case situation could be in anti-phase with the normal switched supply.

When a relay tries to switch between these supplies there is a tendency for the relay to suffer from arcing between the normally open and the normally closed contacts resulting in a temporary short circuit between the two out of phase supplies. This will cause external circuit protection to operate (fuses and/or circuit breakers) and will ultimately destroy the relay.

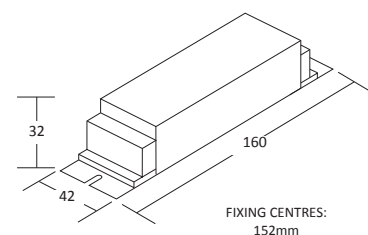
In extreme cases it can also damage the static inverter.

The **SIM240** static inverter module is designed to eliminate these switching problems. The **SIM240** utilises two interposing relays for the two supplies and introduces a time delay of approximately 500m sec between breaking the normal supply and connecting the static inverter supply. This sequence is reversed upon restoration of the monitored 230 volt supply when the **SIM240** immediately breaks the static inverter supply and then after a similar time delay reconnects the normal lighting supply.

A dimming isolation facility is incorporated as standard for use with dimming ballasts to enable full light output to be achieved in the emergency condition.

### GENERAL SPECIFICATION

Supply Voltage	230Volt (220-240V) ~ 50 Hz
Supply Current	18mA
Temperature Range	0 to 70°C
Relays	2 x DPCO plus 1 x SPCO
Time Delay on Changeover	500mS (approx.)
Relay Rated Voltage	240V AC
Relay Rated Current	4A maximum
Dimensions	32mm (H) x 42mm (W) x 160mm (L)



**SCHEMATIC — SIM240** (CIRCUIT SHOWN IN MAINS INPUT HEALTHY MODE)

