

# Inferno

LED - MR16 - GU10

DESIGNER FIXED AND ADJUSTABLE  
90 MINUTE FIRE RATED DOWNLIGHTS

COMPLIANT WITH BUILDING REGULATIONS:

PART L - CONSERVATION OF FUEL AND POWER (LED)  
PART B - FIRE SAFETY



LED  
BATHROOM  
EMERGENCY  
LOW VOLTAGE  
MAINS VOLTAGE

Since the introduction of Building Regulations Part B, there has been a requirement to ensure adequate protection to people in a building once a recessed light fitting has compromised the integrity of the fire barrier. (ceiling)

Fire hoods are available to regain the ceilings fire rating but fire hoods are expensive and time consuming to install correctly. So the obvious solution was to create a downlight which has this 'Fire Hood' built into the fitting, yet keeping the fitting discrete, good quality, and attractive.

This is why we are proud to release our Inferno Fire Rated Designer Downlight to the world, available in fixed and adjustable, White, Chrome, Bronze or Satin Nickel, in either 12V, 230V or LED, and can even be converted into an emergency fitting if needed. Beautifully crafted from aluminium, the Inferno Fire Rated Downlights are the perfect solution for designers, homeowners, and architects who require a good quality light fitting that adheres to regulations.

LED..... 3W 350mA Cree



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LOW VOLTAGE..... 50W 12V MR16



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MAINS VOLTAGE..... 50W 230V GU10



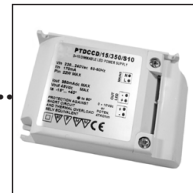
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BATHROOM.....



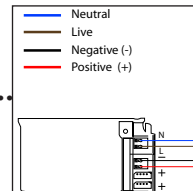
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Fixed LED



FIREHLEDF

Adjustable LED



FIREHLEDA



CHROME (CHR)



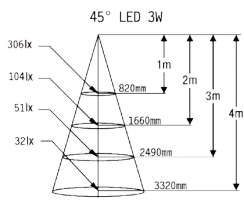
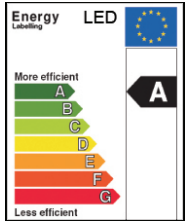
SATIN NICKEL (SN)



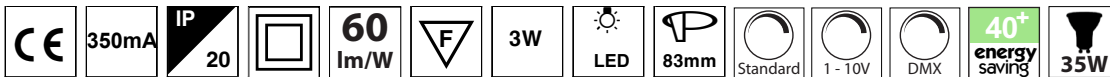
WHITE (WH)



BRONZE (BZ)



LED



The LED fire rated downlighter has many benefits over commonly used halogen / dichroic lamps. The main benefit is the lamp's life. At roughly 50,000 hours, it would be years before the most basic maintenance, such as lamp changing, would need to be performed.

The LED fire rated downlighter is also part L compliant, which a quarter of all light fittings installed in new build homes have to adhere to.

The 3W output is from super bright cool white and warm white Cree LEDs, which offer roughly the same lux levels as a 35W halogen, with over 60 Lumens Per Watt! The running costs will be 10 x cheaper than that of its 230V 35W halogen counterparts. This fitting is available in a white, stainless steel, bronze and chrome finish.

Description

Benefits

No firehood required Outputs at over 100 LPW Part L Compliant	50,000 - 100,000 Hours Life Fire Rated at over 90 minutes Adjustable or Fixed	Anti Glare Baffle Magnetic Ring Part B Compliant
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Specification

Product Code	Type	Watts	Temp	Cut-Out	Depth	Diameter
FIRE DHLED CW CH	Adjustable	3W	5000 - 10000k	83mm	96mm	96mm
FIRE DHLED CW SN	Adjustable	3W	5000 - 10000k	83mm	96mm	96mm
FIRE DHLED CW BZ	Adjustable	3W	5000 - 10000k	83mm	96mm	96mm
FIRE DHLED CW WH	Adjustable	3W	5000 - 10000k	83mm	96mm	96mm
FIRE DHLED WW CH	Adjustable	3W	2600 - 3200k	83mm	96mm	96mm
FIRE DHLED WW SN	Adjustable	3W	2600 - 3200k	83mm	96mm	96mm
FIRE DHLED WW BZ	Adjustable	3W	2600 - 3200k	83mm	96mm	96mm
FIRE DHLED WW WH	Adjustable	3W	2600 - 3200k	83mm	96mm	96mm
FIRE DHLEDF CW CH	Fixed	3W	5000 - 10000k	83mm	96mm	96mm
FIRE DHLEDF CW SN	Fixed	3W	5000 - 10000k	83mm	96mm	96mm
FIRE DHLEDF CW BZ	Fixed	3W	5000 - 10000k	83mm	96mm	96mm
FIRE DHLEDF CW WH	Fixed	3W	5000 - 10000k	83mm	96mm	96mm
FIRE DHLEDF WW CH	Fixed	3W	2600 - 3200k	83mm	96mm	96mm
FIRE DHLEDF WW SN	Fixed	3W	2600 - 3200k	83mm	96mm	96mm
FIRE DHLEDF WW BZ	Fixed	3W	2600 - 3200k	83mm	96mm	96mm
FIRE DHLEDF WW WH	Fixed	3W	2600 - 3200k	83mm	96mm	96mm

# Low Voltage

# MR16 50W 12V

Fixed MR16



FIRE DH20101F WH

Adjustable MR16



FIRE DH20101A WH



CHROME (CHR)



SATIN NICKEL (SN)

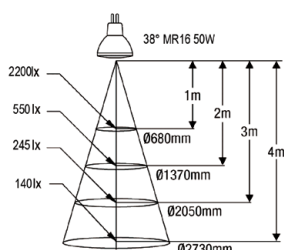


WHITE (WH)



BRONZE (BZ)

Low Voltage Lighting  
Exempt from Energy  
Labelling Directives.



MR16



The MR16 fire rated downlighters require 12V transformers and their main benefits include no firehoods, longer lamp life, (4000 - 5000 hours), and a good quality of light.

The lamps are available in a wide range of different lens angles ranging from spotlight to floodlight.

Description

Benefits

No firehood required Dimmable Emergency fitting available	Safety wiring box Fire Rated at over 90 minutes Adjustable or Fixed	Anti Glare Baffle Magnetic Ring Part B Compliant
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Specification

Product Code	Type	Wattage	Cut-Out	Depth	Diameter
FIRE DH20101A WH	Adjustable	50W	83mm	96mm	96mm
FIRE DH20101F WH	Fixed	50W	83mm	96mm	96mm
FIRE DH20101A CHR	Adjustable	50W	83mm	96mm	96mm
FIRE DH20101F CHR	Fixed	50W	83mm	96mm	96mm
FIRE DH20101A SN	Adjustable	50W	83mm	96mm	96mm
FIRE DH20101F SN	Fixed	50W	83mm	96mm	96mm
FIRE DH20101A BZ	Adjustable	50W	83mm	96mm	96mm
FIRE DH20101F BZ	Fixed	50W	83mm	96mm	96mm

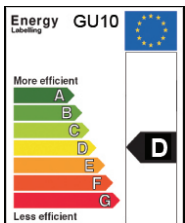
# Mains Voltage

GU10 50W 230V

Fixed GU10



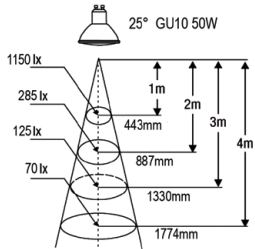
FIRE DH24101F WH



Adjustable GU10



FIRE DH24101A WH



GU10



CHROME (CHR)



SATIN NICKEL (SN)



WHITE (WH)



BRONZE (BZ)

Description

The GU10 fire rated white downlighter is the easiest option to choose if you wish to make your lighting part B compliant. There are no transformers or firehoods required, meaning that the installation process is as simple as connecting a couple of wires.

The lamps are available in a wide range of different reflectors angles ranging from spot to flood.

Benefits

No firehood required  
Dimmable  
No Transformer required

Safety wiring box  
Fire Rated at over 90 minutes  
Adjustable or Fixed

Anti Glare Baffle  
Magnetic Ring  
Part B Compliant

Specification

Product Code	Type	Wattage	Cut-Out	Depth	Diameter
FIRE DH24101A WH	Adjustable	50W	83mm	96mm	96mm
FIRE DH24101F WH	Fixed	50W	83mm	96mm	96mm
FIRE DH24101A CHR	Adjustable	50W	83mm	96mm	96mm
FIRE DH24101F CHR	Fixed	50W	83mm	96mm	96mm
FIRE DH24101A SN	Adjustable	50W	83mm	96mm	96mm
FIRE DH24101F SN	Fixed	50W	83mm	96mm	96mm
FIRE DH24101A BZ	Adjustable	50W	83mm	96mm	96mm
FIRE DH24101F BZ	Fixed	50W	83mm	96mm	96mm



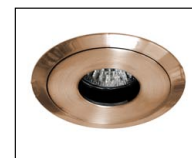
CHROME (CHR)



SATIN NICKEL (SN)



WHITE (WH)



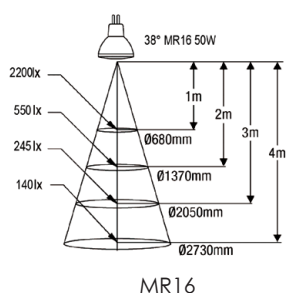
BRONZE (BZ)

Fixed MR16



FIRE DH20101F WH

Low Voltage Lighting  
Exempt from Energy  
Labelling Directives.



Description

The Bathroom range of Inferno fire rated downlighters are available in 12V halogen. They are rated for use in zone 1, which means they can be installed into any part of the ceiling of a bathroom or shower. These fittings can be purchased with either a frosted or a clear glass and can be used in conjunction with the emergency pack.

Only available in Fixed.

Specification

Product Code	Type	Watts	Cut-Out	Volts/Amps	Depth	Diameter
FIRE DH20101F IP54 CHR	Fixed	50W	83mm	12V	96mm	96mm
FIRE DH20101F IP54 SN	Fixed	50W	83mm	12V	96mm	96mm
FIRE DH20101F IP54 WH	Fixed	50W	83mm	12V	96mm	96mm
FIRE DH20101F IP54 BZ	Fixed	50W	83mm	12V	96mm	96mm

### 12V Transformers

**ET4632.32 PRE-WI**



Construction	Polycarbonate
Voltage	12V AC
Minimum Load	35W
Maximum Load	60W
Transformer Length	124mm
Transformer Height	30mm
Transformer Width	36mm
For use with:	Halogen
Dimmable	Yes

**PICO SUPER 60**



Construction	Polycarbonate
Voltage	12V AC
Minimum Load	10W
Maximum Load	60W
Transformer Length	87mm
Transformer Height	20mm
Transformer Width	30mm
For use with:	Halogen
Dimmable	Yes

### 350mA LED Drivers Switching

**BULL 350mA 6W**



Construction	Plastic
Output Wattage	6W
Height	42mm
Width	40mm
Depth	21mm
Maximum 3 Watt LED's	1
Max LED to Driver Distance	20m
For use with:	LEDs
Wiring Type	Series
Amperage	350mA
Dimmable	No

**DC350mA 10W**



Construction	Plastic
Output Wattage	10W
Height	20mm
Width	115mm
Depth	32mm
Maximum 3 Watt LED's	2
Max LED to Driver Distance	20m
For use with:	LEDs
Wiring Type	Series
Amperage	350mA
Dimmable	No

### 350mA LED Drivers 0/1-10V Dimming

**PTDCCD15350**



Construction	Plastic
Output Wattage	15W
Height	103mm
Width	67mm
Depth	30mm
Maximum 3 Watt LED's	4
Max LED to Driver Distance	20m
For use with:	LEDs
Wiring Type	Series
Amperage	350mA
Dimmable	Yes

## 350mA LED Drivers Normal Dimming

### LED DRIVER 4W



Construction	Plastic
Output Wattage	4W
Height	87mm
Width	56mm
Depth	40mm
Maximum 3 Watt LED's	1
Max LED to Driver Distance	20m
For use with:	LEDs
Wiring Type	Series
Amperage	350mA
Dimmable	Yes

### DCJOLLY MD 240V



Construction	Plastic
Output Wattage	15W
Height	166mm
Width	47mm
Depth	35mm
Maximum 3 Watt LED's	5
Max LED to Driver Distance	20m
For use with:	LEDs
Wiring Type	Series
Amperage	350mA / 700mA / 12V / 24V
Dimmable	Yes

## Bulbs

### 12V MR16



M280 CONSTANT	50W	55°
M258 CONSTANT	50W	40°
M250 CONSTANT	50W	27°
M249 CONSTANT	50W	14°
M281 CONSTANT	35W	40°
M270 CONSTANT	35W	20°
M271 CONSTANT	35W	12°
M269 CONSTANT	20W	40°
M268 CONSTANT	20W	12°

### 240V GU10



PAR16S SYL	50W	25°
PAR16F SUPERIA50	50W	50°
PAR16F GE *35W*	35W	36°
PAR16F SUPERIA35	35W	25°
PAR16F GE *20W*	20W	36°
PAR16F SUPERIA20	20W	25°

## Extras

### 50mm Frosted Glass

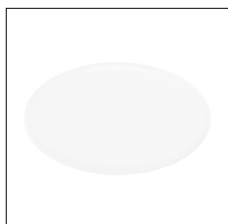
The GLASS 50MM FROST diffuses the light emitted slightly to reduce glare, as well as protect the bulb from dust and moisture. It is an available option for the bathroom fittings.



GLASS 50MM FROST

### 50mm Clear Glass

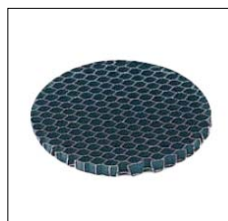
The GLASS 50MM CLEAR protects the lamp from moisture, and is an available option for the bathroom fittings.



GLASS 50MM CLEAR

### 50mm Honeycombe Filter

The HC2003 is an anti glare filter used with any of the Inferno range of downlights. The filter reduces the amount of glare which can be seen by the user without compromising the light output.



HC2003



# EASY DIMMING GUIDE FOR LEDs

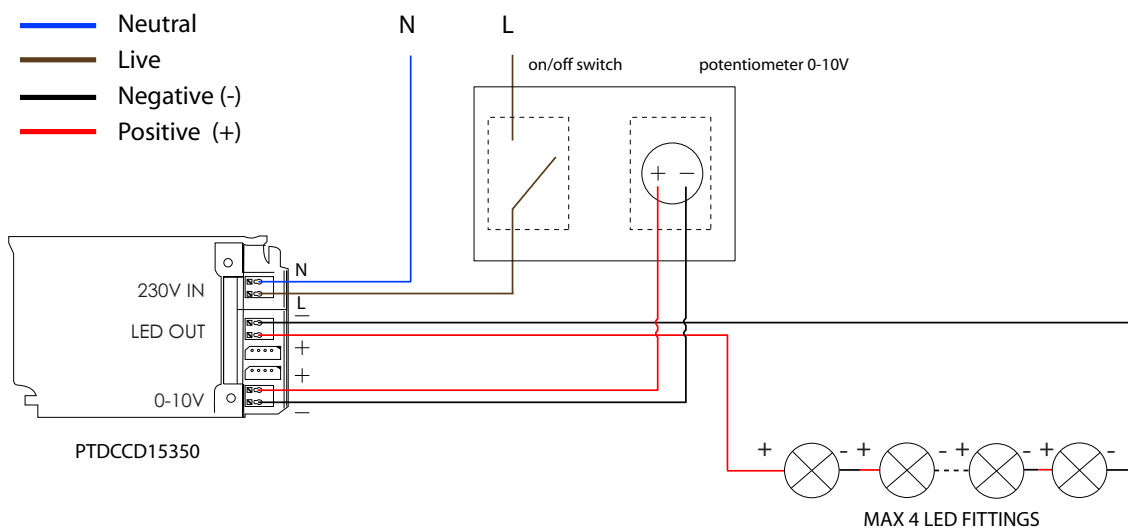
LEDs have many benefits over halogens and general filament lights. They are the next stage in evolution in lighting. Providing a energy efficient source of lighting, with low heat output and a variety of colour temperatures, They are changing the way that light is used in our homes and businesses. With their long life there is no need to buy replacement bulbs, saving you time and money.

Dimming leds allows the user to adjust different light levels in different areas so that 'moods' are created. Until recently, only filament lamps such as halogens have had the ability to dim, but now all that has changed. This guide will show you the most convenient and hassle free methods for dimming your 350mA LEDs using the 2 most commonly used methods.

## 0/1-10V Dimming

0-10V is one of the simplest electronic lighting control signalling systems; simply put, the control signal is a DC voltage that varies between zero and ten volts. The controlled lighting should scale its output so that at 10V, the controlled light should be at 100% of its potential output, and at 0V it should be at 0% output (i.e. "Off"). 0/1-10V does not require a minimum load and could dim a single LED fitting.

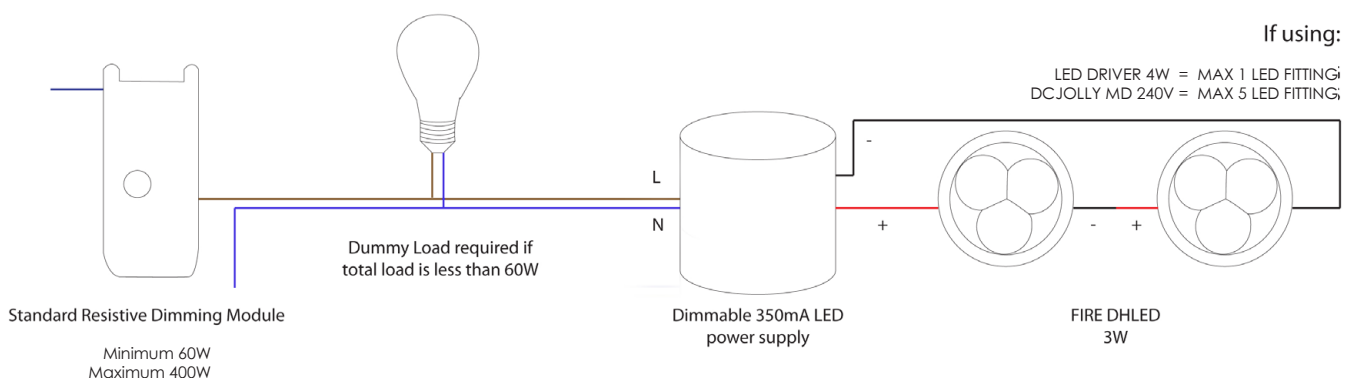
Our PTDCCD15350 driver is 1-10V, and would require a separate switch to turn the dimmer on or off. You WILL NOT be able to switch off the circuit using the potentiometer alone.



## Resistive Dimming

For use with nearly all domestic dimmers. Most resistive dimmers have a minimum load of 60W, therefore ensure that if this not met, a dummy load is added to the circuit, such as a mains voltage halogen fitting. Resistive dimming is ideal for a large circuit of LED fittings which would total more than 60W.

We recommend using either our LED DRIVER 4W or our DCJOLLY MD 240V.



# MR16 Emergency Pack

20W/50W @ 12V 3hrs



Emergency Pack fits through downlight hole!

The MR16 Low Voltage Emergency Conversion pack allows our 12V Inferno fittings to illuminate for up to 3 hours in the event of total power loss. The pack is small and will fit into any 75mm or larger hole, allowing for the pack to be hidden away in the ceiling with the downlights.

The pack is only available in Maintained.

Product Code	Type	Wattage	Voltage	Lamp
SP75/6/50/M3	Maintained	50W	12V	MR16
SPE55/6/20/50	Maintained	20W	12V	MR16

# LED Emergency Pack

3W @ 350mA - 3hrs



Emergency Pack fits through downlight hole!

The LED Emergency Conversion pack allows the LED module from our FIRE DHLED Inferno fitting to illuminate for up to 3 hours in the event of total power loss. The pack is small and will fit into any 38mm or larger hole, allowing for the pack to be hidden away in the ceiling with the downlights.

The pack is only available in Maintained.

Product Code	Type	Wattage	Amperage	Lamp
SP/31Z/M3	Maintained	3W	350mA	LED

# EMERGENCY LIGHTING CONVERSIONS

Emergency lighting is a self-descriptive term and is lighting for an emergency situation when the main power supply fails. The loss of mains electricity could be the result of a fire or a power cut and the normal lighting supplies fail. This may lead to sudden darkness and a possible danger to the occupants, either through physical danger or panic.

Emergency lighting is normally required to operate fully automatically and give illumination of a sufficiently high level to enable persons of all ages to evacuate the premises safely. Most new buildings now have emergency lighting installed during construction, the design and type of equipment is normally specified by the relevant local authority, architect or consultant.

The British Standard provides the emergency lighting designer with laid down guide lines which form the general basis for him to work on. British Standard BS 5266: Part 1: 2005 includes in its scope residential hotels, clubs, hospitals, nursing homes, schools and colleges, licensed premises, offices, museums, shops, multi-storey dwellings etc. Although this standard recommends the types and durations of emergency lighting systems relating to each category of premise it should be remembered that the standards are minimum safe standards for the types of premises and that a higher standard may be needed for a particular installation.\*

## Maintained or Non Maintained

Mr Resistors Emergency conversion kits are available in either Maintained or Non Maintained.

A Maintained light fitting is a fitting which is always illuminated whether there is a power cut or not. It is technically just a normal light which only becomes an emergency light in the event of power loss. A Non Maintained light fitting is always being charged via the mains until the electricity supply is stopped (power cut), resulting in the light automatically becoming switched on.

## How much light do i need in an emergency?

BS5266 recommends the provision of a horizontal illumination at floor level on the centre line of a defined escape route (permanently unobstructed) not less than 0.2 lux and 0.5 lux minimum for anti panic areas to exclude 0.5 metre border around the room. In addition, for escape routes of up to 2m wide, 50% of the route width should be lit to a minimum of 0.1 lux. Wider escape routes can be treated as a number of 2m wide bands. The actual degree of illumination should be closely related to the nature of both the premises and its occupants with special consideration being given to old person's homes, hospitals, crowded areas such as pubs, discos and supermarkets, and to whether or not the premises are residential.\*

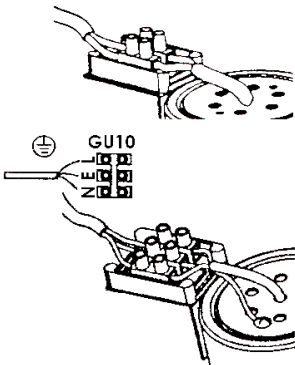
# INSTALLATION INFORMATION

Please ensure that all electrical work is carried out by a qualified electrician.

## Wiring

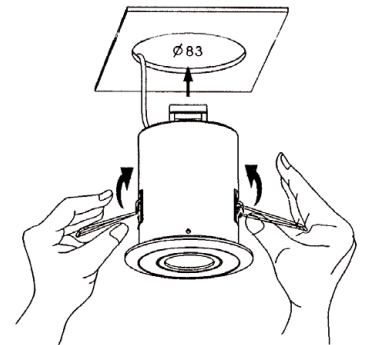


When installing the Fire Rated Downlighter, it is important to ensure that there is a clearance of at least 250mm between the downlight and any sort of insulation or material (see diagram below). Connect the power supply to the fitting using the safety connection box at the top, making sure the correct polarities are followed.

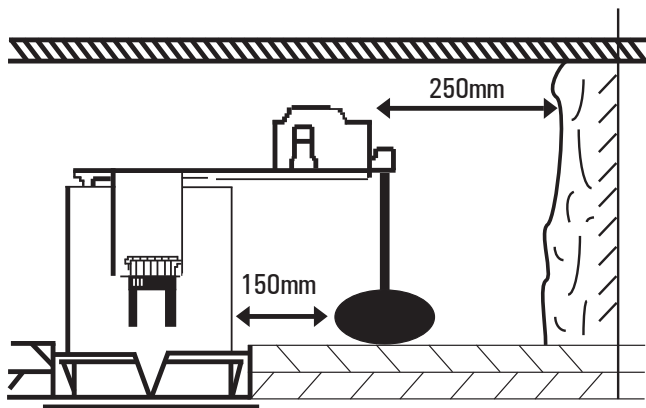


Once the power supply has been connected but **NOT** turned on, push the springs against the side of the downlight and push the unit into the downlight hole. The springs on the side of the can will then snap back against the ceiling, firmly holding the can in position.

After inserting the lamp, turn the power supply back on and you're ready to go.



## MR16 Transformer



The MR16 downlighter requires a transformer, which will have to be positioned in close proximity to the fitting itself. 150mm of space needs to be left between the light fitting itself and the transformer to avoid thermal cutout caused by overheating.

The diagram to the left shows the correct distance to position the transformer.

## LED Driver

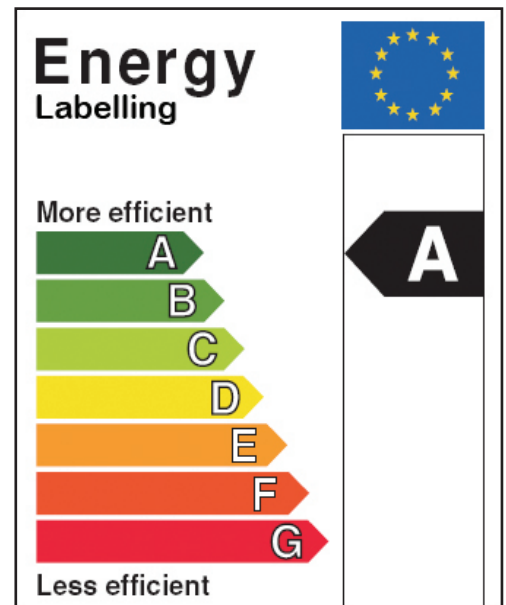
The LED downlighter requires a driver which can be positioned much further away than the transformer can with the MR16. The LED driver can be positioned up to 20m from the Inferno fitting itself.

# ENERGY SAVING LABELLING

## What is energy saving labelling?

In line with **Directive 98/11/EC** and the Energy Consumption Labelling Ordinance lamps for household applications must have an energy label.

This label seen on the right shows which of the seven classes of energy efficiency the household lamp has been assigned to. 'A' stands for 'very efficient' and 'G' for 'least efficient'. Lamps are assigned to the energy efficiency classes according to their measured luminous flux and wattage. The methods used for measuring these values are defined in: **'DIN EN 50285:1999: Energy efficiency of electric lamps for household use, measuring methods'**.



## So what is the Inferno Rock 'n' Roll classed as?

The Inferno Rock 'n' Roll LED fitting outputs at over 60 Lumens Per Watt (lm/W), and with only 3W of power being used, the fitting produces an astonishing 180 lumens, similar to that of a 35W GU10. The life of the lamp is also rated at roughly 50,000 hours, or about 22 years if left on 4 hours a day, every day. All these reasons give the Inferno Rock 'n' Roll an Energy Class of 'A', the most energy efficient class available.

In comparison, the GU10 fitting only produces 7 lm/W so cannot be classed as energy saving. Also, because the life of the lamp only being roughly 2000 hours, means that the Inferno Rock 'n' Roll GU10 fitting has only been given an energy class of 'D'.

Low Voltage fittings are exempt from having to display energy saving labelling. It produces 16 lm/W.

# BUILDING REGULATIONS

The Communities and local Government Department are responsible for building regulations. These regulations exist to ensure the health and safety of people in and around buildings, and the energy efficiency of buildings. The regulations apply to most new buildings and many alterations of existing ones in England and Wales, whether they are domestic, commercial or industrial.

## **Building Regulations apply in England & Wales and promote:**

Standards for most aspects of a building's construction, including its structure, fire safety, sound insulation, drainage, ventilation and electrical safety. Electrical safety was added in January 2005 to reduce the number of deaths, injuries and fires caused by faulty electrical installations.

Energy efficiency in buildings. The changes to the regulations on energy conservation, into effect on 6 April 2006, will save a million tonnes of carbon per year by 2010 and help to combat climate change.

The needs of all people, including those with disabilities, in accessing and moving around buildings. They set standards for buildings to be accessible and hazard-free wherever possible. The Inferno Rock 'N' Roll range caters for many of these new regulations and is therefore ideal for new build situations.

Whether you want Low or Mains voltage, Led or Emergency, the options available allow you to mix different lighting methods while keep a uniformed style amongst all of your fittings. All the fittings found in the Inferno range do not require firehoods and are available in a white finish.

*The list of current approved documents of the Building Regulations are listed below*

- (Part A) Structure
- (Part B) Fire safety
- (Part C) Site preparation and resistance to moisture
- (Part D) Toxic substances
- (Part E) Resistance to the passage of sound
- (Part F) Ventilation
- (Part G) Hygiene
- (Part H) Drainage and waste disposal
- (Part J) Combustion appliances and fuel storage systems
- (Part K) Protection from falling, collision and impact
- (Part L) Conservation of fuel and power
- (Part M) Access to and use of buildings
- (Part N) Glazing - safety in relation to impact, opening and cleaning
- (Part P) Electrical safety

For more information regarding current building regulation documents, please visit the following link:

[www.communities.gov.uk/planningandbuilding/buildingregulations](http://www.communities.gov.uk/planningandbuilding/buildingregulations)

## **The entire Inferno Rock 'N' Roll range covers part B of the building regulations:**

**Part B** covers all fire precautionary measures that are necessary to provide safety from fire that will safeguard building occupants, persons in the vicinity of buildings, and fire fighters. Requirements and guidance cover means of escape in case of fire, fire detection and warning systems, fire resistance of structural elements, fire separation, protection, compartmentation and isolation to prevent fire spread and conflagration, control of flammable materials, and access and facilities for fire fighting.

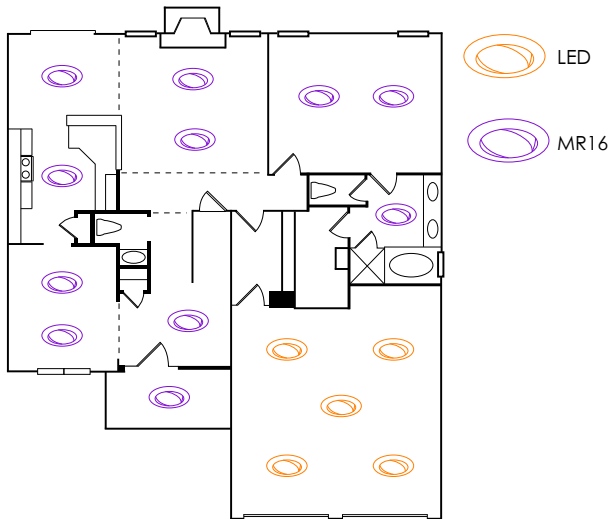
The Fire Regulations ensure that any floor where there are inhabitants living on the floor above must have all the recessed lighting fire protected. This would usually entail either building airtight boxes to surround the light fittings, or more likely, getting firehoods to cover each fitting. Contrary to popular belief, firehoods are not there to stop the fitting catching fire and becoming a fire hazard in its own right. Ceilings have to be fire retardent for 60 minutes in the event of a fire, which is the reason fire hoods exist. Its there to allow people trapped on the floor above of a burning building to have enough time to get out in the event of a fire.



The LED fitting is also compliant with Building Regulations Part L1 and L2 which refers to:

**Part L1** is specific to dwellings. It controls the insulation values of building elements, the allowable area of windows, doors and other openings, air permeability of the structure, the heating efficiency of boilers and the insulation and controls for heating appliances and systems together with hot water storage and lighting efficiency. It also sets requirements for SAP and Carbon Index ratings for dwellings. Further regulations also require the advertising of these ratings.

New build residential dwellings require at least 25 % of all the light fittings to produce at least 40 lm/W. This means you can spread the low energy fittings across the house, or if preferred all in one room. For example; if you have a house which is going to have a total of 16 light fittings, then you would need to ensure that at least 4 of them were LED or Fluorescent.



The diagram to the left shows an example of how to install lighting into a property which needs to adhere to the rules of the Building Regulations Part L1.

In a building containing 16 light fittings, at least 4 of them must output at over **40 Lumens Per Watt**. This means that a fittings overall lumen output must total over 40 after being divided by its wattage. This could be all be within 1 room or, if preferred, can be spread around the house.

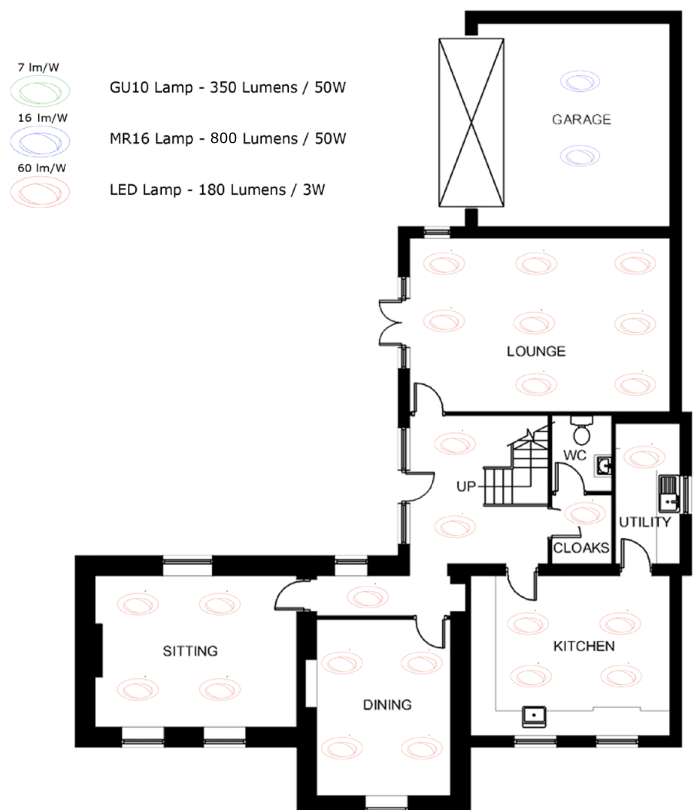
I.E: Inferno Rock n Roll LED outputs at 300 Lumens.  
 $180 / 3 = 60 \text{ Lumens Per Watt}$ .

Therefore, the LED fittings are fine to use for your 25%.

**Part L2** relates to all building uses other than dwellings. In addition to insulation requirements and limitation of openings of the building fabric this part considers solar heating and heat gains to structures, it controls heating, mechanical ventilation and air conditioning systems, lighting efficiency, space heating controls, air permeability plus air tightness testing of larger buildings, solar emission, the certification, testing and commissioning of heating and ventilation systems, and requirements for energy meters.

Non residential properties cover commercial and industrial areas. When new commercial builds are being planned, the total number of lights need to be counted, as well as the total lumen outputs. The total lumens need to be divided by the total number of light fittings and the resulting number produces the average Lumens Per Watt for the building. This average needs to be above 50 to ensure that the building is efficient.

As you can see from the example on the right, commercial premises such as shops and offices require the overall average lumen output to be above 50 Lumens Per Watt.



Below is an equation which can let you know whether or not you are adhering to the Building Regulations part L2.

25 x 3W LED Lamp @ 180 Lumens  
**= 75W and 4500 Lumens**

2 x 35W MR16 Lamp @ 560 Lumens  
**= 70W or 1120 Lumens**

39W + 70W = 109W  
 4500 Lumens + 1120 Lumens = **5620 Lumens**

5620 Lumens/109 Watts = **51.6 Lumens Per Watt (LPW)**

So the average lumen output for the whole building is over 50 LPW

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