

LASCON[®]

PROJECT LIGHTING

PROFESSIONAL LIGHTING CATALOGUE

THE HOME OF PROFESSIONAL LIGHTING

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2022/07 - For the full disclaimer see inside.

Lascon Professional Lighting Catalogue Volume 2

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VOLUME 2

PROFESSIONAL LIGHTING CATALOGUE

LASCON[®]

PROJECT LIGHTING



INTRODUCTION

Dear Valued Customer

It gives us great pleasure to introduce our most innovative and technically advanced product range to date, where the emphasis is on "the quality of light" our fixtures produce. Our products are more energy efficient and greener than ever, and are designed to add value to all your projects.

We are deeply indebted to our technology partners and chosen suppliers, without whom, we would not have been able to design light fixtures of the highest quality, in terms of appearance, performance and durability.

ISO/TS 16949:2009

LASCON.

ADDING
VALUE
THROUGH
INNOVATION

DISCLAIMER

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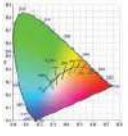
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- 10.2. Overloading;
- 10.3. Use other than that prescribed for the products;
- 10.4. Use on aluminium or similar softer "fix to" materials.

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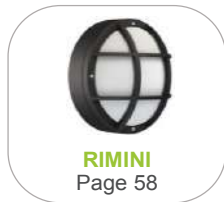


CEILING AND WALL LUMINAIRES

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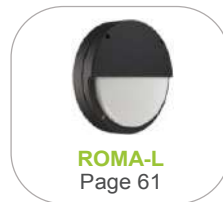
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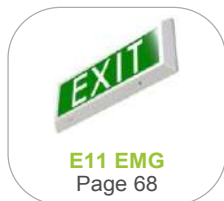


EMERGENCY LIGHTING

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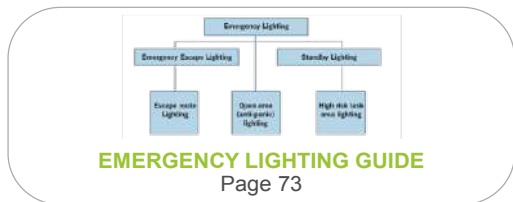
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RECESSED DOWNLIGHTS

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FUTURA GU10

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FUTURA 1

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FUTURA 2-IP

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FUTURA 3

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FUTURA 4

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FUTURA 5

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FUTURA 6

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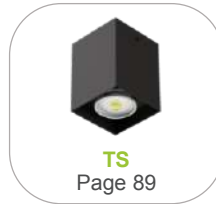
SURFACE DOWNLIGHTS

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MINE LUMINAIRES

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ZONED LUMINAIRES

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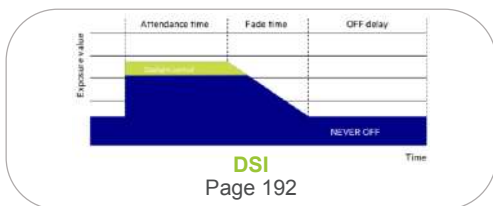
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DIGITAL SIGNAL INTERFACE (DSI)

DIGITAL ADDRESSABLE LIGHTING INTERFACE

BLUETOOTH



TECHNICAL INFORMATION











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SAFETY CLASS I	
	Electrically insulated and earthed. In the event of a basic insulation failure, exposed metal parts that could become live are protected by the earth
	Suitable for mounting on normally flammable surfaces such as wood. Max surface temp <90°C
	Luminaire is fitted with Electronic control gear
	Luminaire can be fitted with an emergency module
	Luminaire can be fitted with a dimmable ballast
INGRESS PROTECTION	
	Protection rating against dust and water
LAMP NOT INCLUDED	
	Luminaire does not come complete with lamps and should be ordered as a separate item
	Operating Voltage

LASCON® LIGHTING TERMS

COLOUR TEMPERATURE

Unit of measurement: Kelvin [K]

The colour temperature of a light source is defined in comparison with a "black body radiator" and plotted on what is known as the "Planckian curve". The higher the temperature of this "black body radiator", the greater the blue component in the spectrum and the smaller the red component. An incandescent lamp with a warm white light, for example, has a colour temperature of 2700K whereas a daylight fluorescent lamp has a colour temperature of 6000K.

LIGHT COLOUR

The light colour of a lamp can be neatly defined in terms of colour temperature. There are three main categories here:

- Warm White < 3300K
- Cool White 3300K – 5300K
- Daylight > 5300K

Despite having the same light colour, lamps may have very different colour rendering properties owing to the spectral composition of their light.

COLOUR RENDERING

As a rule, artificial light should enable the human eye to perceive colours correctly, as it would in natural daylight. Obviously, this depends to some extent on the location and purpose for which light is required.

The criterion here is the colour rendering property of a light source. This is expressed as a "general colour rendering index" (Ra).

The colour rendering index is a measure of the correspondence between the colour of an object (its "self-luminous colour") and its appearance under a reference light source. To determine the Ra values, eight test colours defined in accordance with DIN 6169 are illuminated with the reference light source and the light source under test. The smaller the discrepancy, the better the colour rendering property of the lamp being tested.

A light source with an Ra value of 100 displays all colours exactly as they appear under the reference light source. The lower the Ra value, the worse the colours are rendered.

LUMINAIRE EFFICIENCY

Luminaire efficiency (also known as light output ratio) is an important criterion in gauging the energy efficiency of a luminaire. This is the ratio between the luminous flux emitted by the luminaire and the luminous flux of the lamp (or lamps) installed in the luminaire.

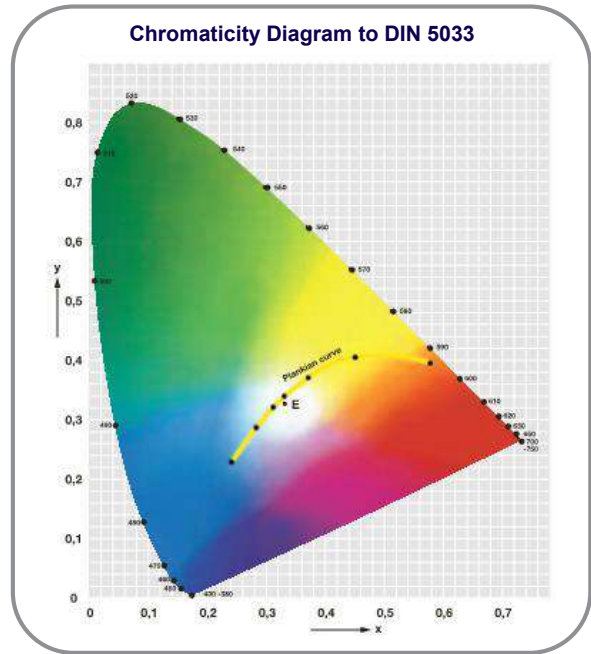
AVERAGE LIFE

The average life of a lamp is an average of the lives of individual lamps operated under standard conditions (50% failure = average rated life).

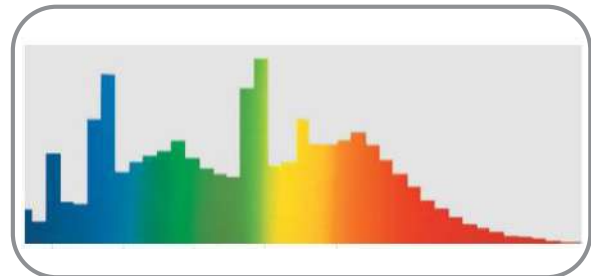
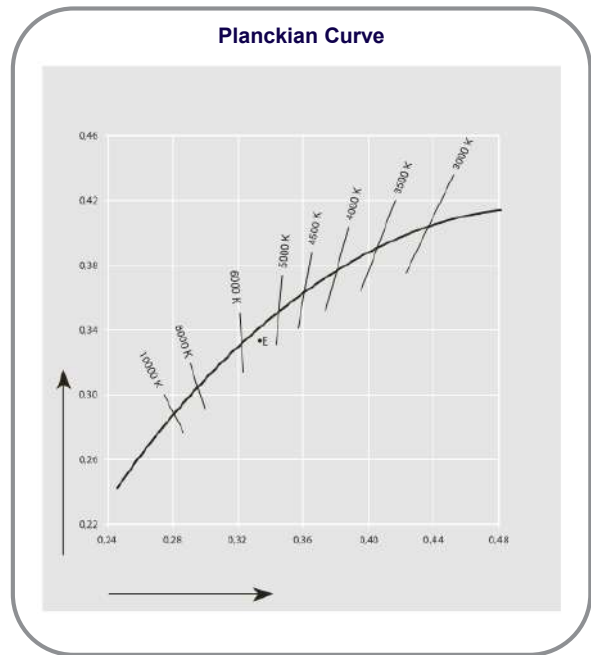
SERVICE LIFE

Service life is a simple practical measure of the economical life of a lamp. It is the number of hours of operation after which the system luminous flux (i.e. the product of the relative luminous flux and the relative proportion of lamps still in operation) is around 80% of the initial value.

Chromaticity Diagram to DIN 5033



Planckian Curve



Wavelength

Spectrum of a BIOLUX fluorescent lamp. The radiation is very evenly distributed over the entire visible range

LASCON[®] LIGHTING TERMS

GLOSSARY OF THE MOST IMPORTANT LIGHTING TERMS

As with any technical or scientific discipline, lighting technology has its own special terms and concepts for defining the characteristics of lamps and fixtures and for standardizing the units of measurement.

The most important terms are described here.

LUMINOUS FLUX Φ

Unit of measurement: lumen [lm]
Luminous flux Φ is all the radiated power emitted by a light source evaluated with the spectral sensitivity of the eye and the photometric radiation equivalent k.

LUMINOUS INTENSITY I

Unit of measurement: candela [cd]
Generally speaking, a light source emits its luminous flux Φ in different directions and at different intensities.
Luminous intensity is the luminous flux radiated in a particular direction (solid angle Ω).

ILLUMINANCE E

Unit of measurement: lux [lx]
Illuminance E is the ratio between the luminous flux and the area being illuminated.
An illuminance of 1 lx occurs when a luminous flux of 1 lm is evenly distributed over an area of 1m².

LUMINANCE L

Unit of measurement: candela per square meter [cd/m²]
The luminance L of a light source or an illuminated area is a measure of the impression of brightness.

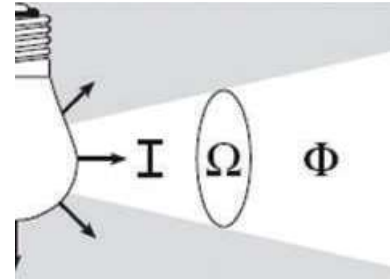
LUMINOUS EFFICACY η

Unit of measurement: lumen per watt [lm/W]
Luminous efficacy η indicates the efficiency with which the electrical power consumed is converted into light.

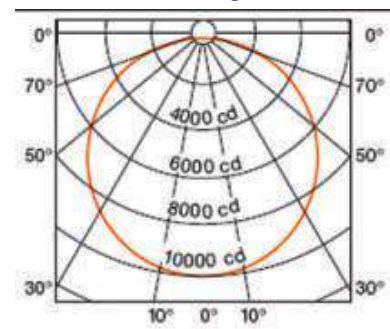
LIGHT AND RADIATION

Light is taken to mean the electromagnetic radiation that the human eye perceives as brightness. In other words, that part of the spectrum that can be seen. This is the radiation between 380 and 780 nm, a tiny fraction of the known spectrum of electromagnetic radiation.

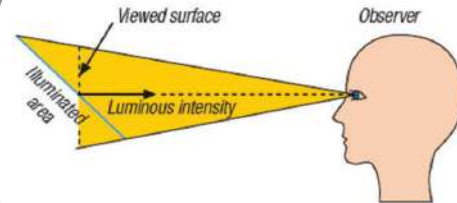
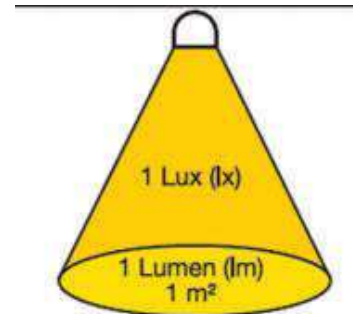
Luminous intensity I is a measure of the luminous flux Φ emitted in solid angle Ω .



Polar diagram



Illuminance E



The most important photometric Formulae

Luminous intensity [cd] I

Luminous Flux [lm] Solid Angle Ω [sr]

Luminance [cd/m²] L

Luminous Intensity [cd] Viewed Luminous Area [m²]

Illuminance [lx] E

Luminous Flux falling on Area [lm] Illuminated Area [m²]

Luminous Efficacy [lm/W] η

Generated Luminous Flux [lm] Electrical Power Consumed [W]

WHAT IS AN LED

LEDs (Light Emitting Diode) are electronic components which emit light when an electrical current passes through them. This is possible thanks to the optical properties of some semiconductors which emit photons when current is passed through them.

When a group of LEDs are installed on a printed circuit they are known as an LED module.

CHIP ON BOARD (COB) AND SURFACE MOUNTED DEVICE (SMD)

LASCON Project Lighting use both COB and SMD LED technologies in our luminaire. Typically, SMD is used in our linear luminaires whereas COB is used for LED downlights and floodlights.

Chip on board technology means the different components of the LED (chip, fluorescent converter and wire bond) are built together on the printed circuit board. SMD technology means the different components of the LED are re-fabricated. The unit is soldered to the printed circuit board as a whole.

ADVANTAGES OF LED

- Energy efficient technology
- Instant flicker-free light
- Very low direct thermal output
- No IR or UV radiation in the light
- Constant colour throughout the life of the LED
- Very high luminous efficacy
- Insensitive to vibrations
- Easy disposal at end of life

LIFETIME

Lifetime (L value)

LED sources, unlike traditional lighting, do not tend to suddenly fail at the end of their lifetime. LEDs rather have a gradual reduction of their luminous flux overtime before completely running out. This is characterized with the L value L70 means that the LED module will give 70% of its initial luminous flux. This value is always related to the number of operation hours and therefore defines the lifetime of an LED module.

LED life expectancy (B value)

As the L value is a statistical value and the lumen maintenance may vary over the delivered LED modules, a B value defines the amount of modules which are below the specific L value. L70 B10 means 10% of the LED modules are below 70% of the initial luminous flux and 90% will be above 70% of the initial value.

LED failure rate (C value)

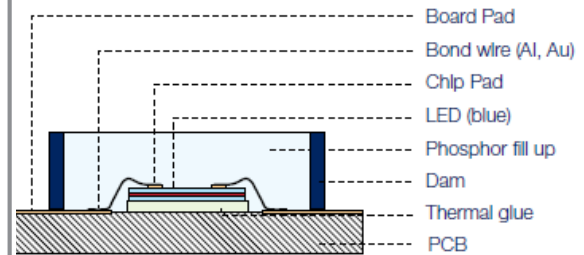
In addition, a percentage of failed modules (fatal failure) is characterized by the C value. This value indicates the percentage of LEDs which are no longer operational at the end of their lifetime.

E.g. L70/B10/C0: 50,000 hours - indicates that after 50,000 hours, the percentage of LEDs no longer working is 0%.

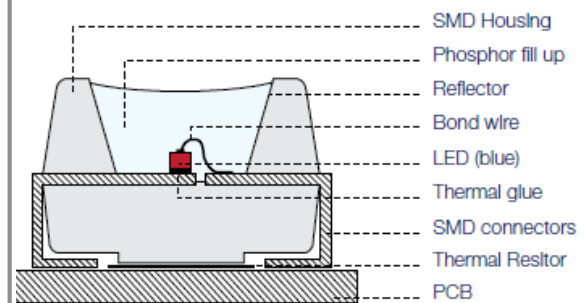
Imperfection rate (F value)

The F value is the combination of the B and C value. The F value, followed by a value normally between 10 and 50, provides a more detailed indication of the percentage of components which do NOT maintain their declared luminous flux characteristics (B), also the failure percentage (C) of the LED module. e.g. L70F10 means 10% of the LED modules may fail or be below 70% of the initial luminous flux

CHIP ON BOARD (COB)



SURFACE MOUNTED DEVICE (SMD)



LUMEN MAINTENANCE

Forward current	T _p temperature	L90 / F10 L90 / F50 L80 / F10 L80 / F50 L70 / F10 L70 / F50						
		L90 / F10	L90 / F50	L80 / F10	L80 / F50	L70 / F10	L70 / F50	
250 mA	85 °C	23,000 h	35,000 h	49,000 h	>60,000 h	>60,000 h	>60,000 h	
300 mA	85 °C	26,000 h	30,000 h	43,000 h	>60,000 h	>60,000 h	>60,000 h	
350 mA	85 °C	17,000 h	26,000 h	36,000 h	55,000 h	58,000 h	>60,000 h	

TEMPERATURE

Ambient Temperature T_a

When any testing is performed on a product it is for a defined surrounding air temperature. This is the ambient temperature and is designated as T_a . The standard T_a defined for testing is 25°C although testing at any other value is permissible as long as the temperature is declared.

Junction Temperature T_j

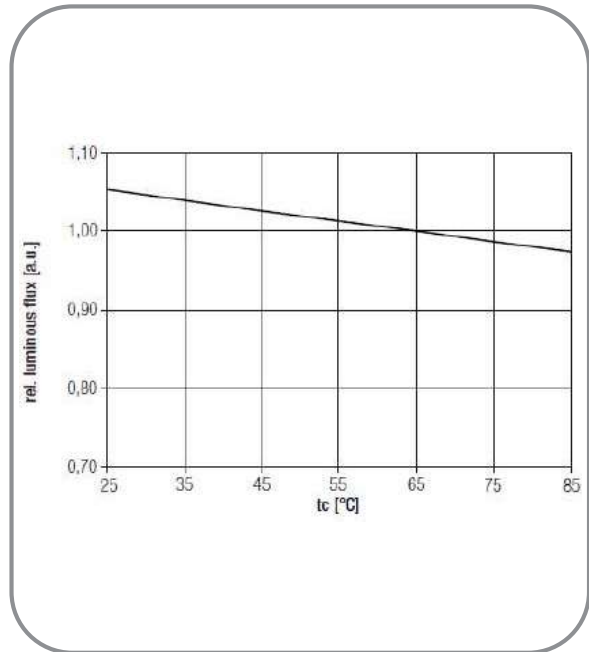
Inside an LED chip is a junction between two materials, one positively charged and one negatively charged. Light is emitted from this junction by the exchange of electrons between the two materials and as a side-effect heat is also generated at the junction. The temperature of the junction needs to be controlled to ensure that the light output and LED lifetime fulfil the requirements for a given application.

It will always be quoted by the luminous flux of our LED luminaires at a T_p temperature of 65°C as a worst-case scenario. Careful attention has been paid to ensure our products do not exceed their maximum permissible reference temperatures.

The T_c / T_p point is situated on the LED PCB and the temperature measured at this point corresponds to the T_j value and makes it possible to predict the behaviour of the LED. The T_c / T_p point is readily accessible with a temperature sensor, thus making readings easy to take.

The T_c and T_p temperature of LED modules from Tridonic are measured at the same reference point.

The below graph shows the luminous flux at 100% at T_c 65°C as stated in our catalogue, however if T_c is below 65°C the luminous flux increases.



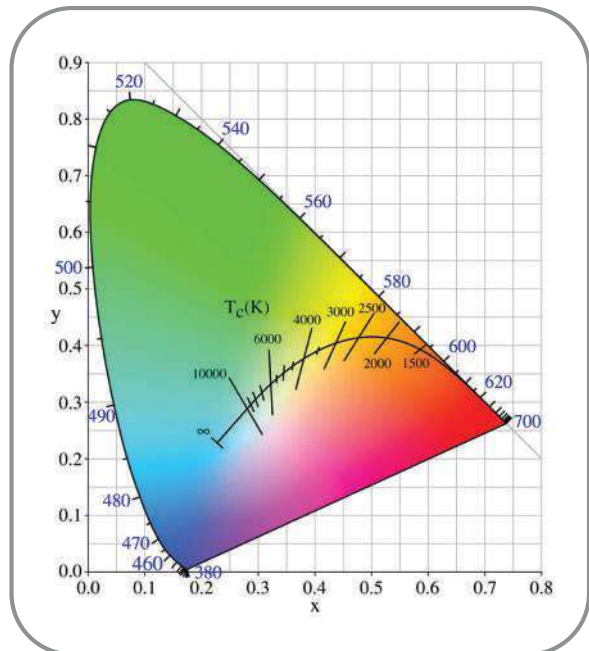
COLOUR

MacAdam Elipse / SDCM

SDCM is an acronym which stands for Standard Deviation Colour Matching. SDCM has the same meaning as a “MacAdam ellipse”. A 1 step MacAdam ellipse defines a zone in the CIE 1931 2 deg (xy) colour space within which the human eye cannot discern colour difference.

Due to the variable nature of the colour produced by white light LEDs, a convenient metric for expressing the extent of the colour difference within a batch (or bin) or LEDs is the number of SDCM (MacAdam) ellipses steps in the CIE colour space that the LEDs fall into. If the chromaticity coordinates of a set of LEDs all fall within 1 SDCM (or a “1-step MacAdam ellipse”), most people would fail to see any difference in colour. If the colour variation is such that the variation in chromaticity extends to a zone that is twice as big (2 SDCM or a 2-step MacAdam ellipse), you might start to see some colour difference.

A 3-step MacAdam ellipse is better than a 4-step zone and so on. All Lascon linear LED luminaires have a 3-step MacAdam. Colour Shift As white LEDs age, the colour temperature will slowly change. The colour shift is given as the maximum number of MacAdam ellipse the colour will change by. CIE1931 XY chromaticity diagram showing the black body locus (Planckian curve)



STANDARDS

IEC EN 62471 - Photobiological Safety (also PD IEC TR 62778). Light is a form of energy and is capable of causing physical harm. All light sources are classified by RISK GROUP (RG) which indicates how safe the source is. RG0 and RG1 are completely safe, RG2 is safe as long as nobody stares directly into the light source (glancing briefly at it is safe). No light source for general use should be RG3 (although technically the sun is RG3). The main hazard from LED is blue light which can cause damage to the retina.

LM79

A North American standard defining how LED luminaires should be measured for electrical and photometric characteristics.

LM80

A North American standard defining how LED should be measured for lumen maintenance characteristics.

TM21

A North American technical memorandum on projecting long term lumen maintenance of LED light sources. It defines the number of units required for testing and how far the results may be safely extended to predict long term values. The maximum extension allowed is 6x the real test period, so for a 50,000 hour prediction the real test must have been for 8,333 hours. For a 100,000 hour prediction the real test must have been for 16,666 hours.

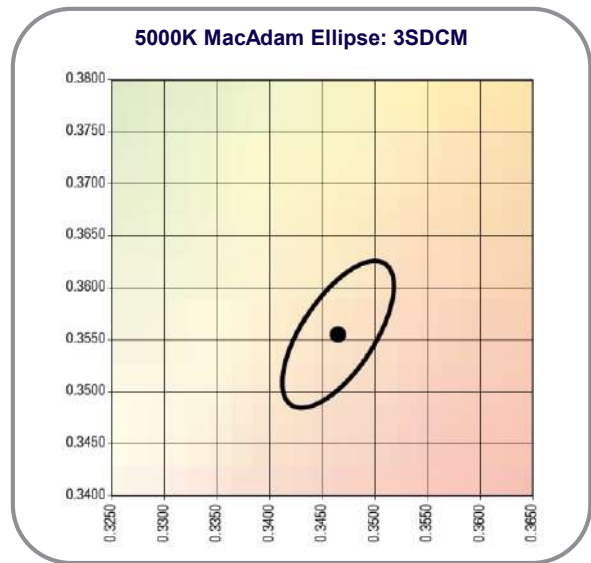
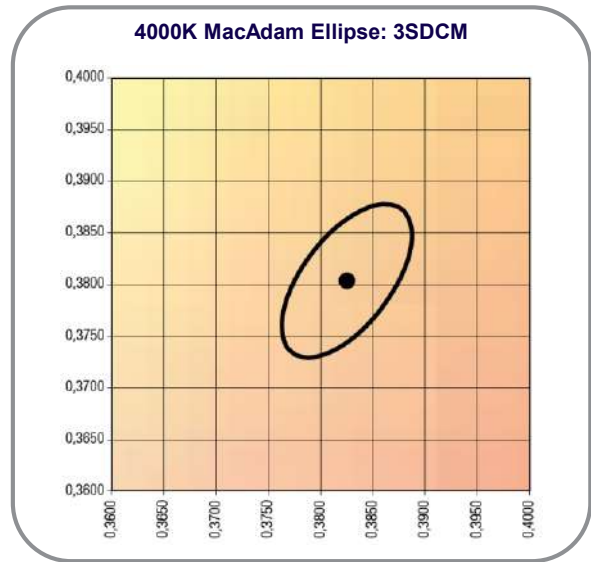
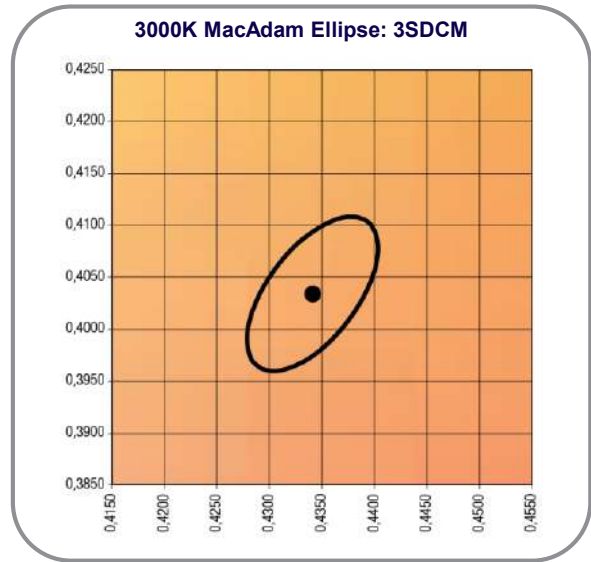
RoHS

This places restrictions on the use of certain hazardous substances in electrical and electronic equipment.

CE Mark

The CE mark shows that a product conforms to the required European directives for placing on the European market. It helps customs and market inspectors in facilitating the free trade and movement of product within Europe. Displaying the CE mark signifies compliance to four main European directives.

1 st digit	2 nd +3 rd digit	4 th digit	5 th digit	6 th digit		
Code	CRI	Colour temperature in Kelvin x 100	McAdam Initial	Luminous flux after 25% of the life-time (max. 600h)		
7	70-79				Code	Luminous Flux
8	80-89				7	≥70%
9	≥90				8	≥80%
			9	≥90%		



LASCON® INGRESS PROTECTION

In addition to protection against the risk of explosion or ignition, luminaires for use in hazardous areas will also need to provide adequate protection against the ingress of solids and liquids.

The degree of protection is denoted by the IP Classification system.

A two digit number is used to identify the degree of protection afforded by the luminaire against the ingress of solids and liquids.

The first digit shows the resistance of the luminaire to the entry of solids and the second digit the resistance to entry of liquids.

NOTE : When a luminaire is rated IP66 (water-tight and dust-tight) this does not imply that it is automatically classified as being dust-ignition and hose-proof. The tests are quite different as those for ingress protection rating exclude any tests for surface temperatures.

FIRST DIGIT NUMERAL	DEGREE OF PROTECTION (Foreign Bodies)	SECOND DIGIT NUMERAL	DEGREE OF PROTECTION (Liquid)
0	No protection	0	No protection
1	Protected against the ingress of solid objects greater than 50mm in diameter	1	Protected against dripping water
2	Protected against the ingress of solid objects greater than 12mm in diameter	2	Protected against dripping water at an angle of 15° from the vertical
3	Protected against the ingress of dust in an amount sufficient to interfere with the satisfactory operation	3	Protected against spray falling at an angle 60° from the vertical
4	Protected against the ingress of solid objects greater than 1mm in diameter	4	Protected against water splashed from any direction
5	Protected against the ingress of dust in an amount sufficient to interfere with the satisfactory operation of the equipment enclosed	5	Protected against water projected by a nozzle against the enclosure from any direction
6	Dust-tight. Complete protection against the ingress of dust	6	Protected from heavy seas or water projected in powerful jets
		7	Protected against immersion in water under defined conditions of time and pressure
		8	Protected against continuous immersion in water

HAZARDOUS AREA LIGHTING

Classification of hazardous areas and locations

What is a hazardous area?

Areas are defined as hazardous where a danger of explosion exists owing to the presence, or possible presence, of a potentially explosive atmosphere or dust resulting from the processes or activity undertaken in the immediate or surrounding area.

Hazardous areas are “zoned” according to the level of risk.

Classification of explosion protected luminaires

Materials

Luminaires used in hazardous areas will often be exposed to corrosive atmospheres or liquids. Care must be taken to ensure that the luminaire is made from materials which are able to resist the corrosive elements which may be present.

Equipment Protection Concepts

The design of electrical equipment for use in hazardous areas is based on a number of established engineering concepts which are intended to protect against the possibility of explosion. These concepts are identified by ‘protection symbols’.

Flammable Fibres	Flammable Dusts	Flammable Gases
<p>ZONE 0 Continually explosive</p> <p>ZONE 1 Likely to be explosive under normal operating Conditions</p> <p>ZONE 2 Explosive only under abnormal conditions</p>	<p>ZONE 21 Likely to contain ignitable concentrations in suspension under normal operating conditions</p> <p>ZONE 22 Not likely to contain dust in suspension but where ignitable deposits may create a hazard</p>	<p>ZONE 21 Likely to be contaminated through handling, manufacture or usage</p> <p>ZONE 22 Unlikely to be contaminated since area is used for storage</p>

LASCON[®] LUMINAIRE CHEMICAL RESISTANCE

CHEMICAL RESISTANCE OF LUMINAIRE MATERIALS

Our range of PRO TECTA luminaires are manufactured in a variety of materials each selected as being the best available to withstand attack from known corrosive elements.

The information set out below should be used as part of the final luminaire selection process.

CHEMICAL	Left Column Materials						Right Column Materials							
	Aluminum LM 6	Glass mat Reinforced Polyester	Acrylic	Polycarbonate	Stainless Steel 304/316	Glass	Vitreous Enamel	Aluminum LM 6	Glass mat Reinforced Polyester	Acrylic	Polycarbonate	Stainless Steel 304/316	Glass	Vitreous Enamel
Accumulator Acid	-	-	-	-	○	ND	●	-	○	○	●	●	●	●
Acetic Acid up to 10%	●	○	-	●	○	ND	●	-	-	-	●	●	●	●
Acetic Acid Anhydride	●	-	-	○	-	ND	●	-	-	-	●	●	●	●
Acetone	●	○	-	○	●	ND	●	-	-	-	●	●	●	●
Alcohol up to 30%	○	●	○	○	●	ND	●	-	-	-	●	●	●	●
Alcohol concentrate	●	●	-	○	●	ND	●	-	-	-	●	●	●	●
Ammonia Anhydrous	●	-	○	-	●	ND	●	-	-	-	●	●	●	●
Ammonia Aqueous	●	-	○	-	●	ND	●	-	-	-	●	●	●	●
Aniline	●	-	-	-	●	ND	●	-	-	-	●	●	●	●
Benzene/Benzole	●	-	-	-	●	ND	●	-	-	-	●	●	●	●
Calcium Chloride	○	ND	ND	ND	-	ND	ND	-	-	-	-	-	-	-
Carbon Dioxide	●	●	●	●	●	ND	ND	-	-	-	-	-	-	-
Carbon Monoxide	●	●	●	●	●	ND	ND	-	-	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	●	●	●	-	-	-	-	-	-	-
Caustic Soda 2%	-	○	●	-	●	-	-	-	-	-	-	-	-	-
Caustic Soda 10%	-	-	●	-	●	-	-	-	-	-	-	-	-	-
Chlorine dry	●	-	○	-	-	●	●	-	-	-	-	-	-	-
Chlorine wet	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	●	-	-	-	●	●	●	-	-	-	-	-	-	-
Common salt/Sodium Chloride	○	●	●	○	●	●	●	-	-	-	-	-	-	-
Crude Oil	●	●	○	○	●	●	●	-	-	-	-	-	-	-
Diesel Oil	●	●	○	○	●	●	●	-	-	-	-	-	-	-
Dioxane	-	●	-	-	●	●	●	-	-	-	-	-	-	-
Ether	●	○	○	-	●	●	●	-	-	-	-	-	-	-
Ethyl Acetate	●	-	-	-	●	ND	ND	-	-	-	-	-	-	-
* Fluorine dry	●	-	-	-	-	-	-	-	-	-	-	-	-	-
* Fluorine wet	-	-	-	-	ND	-	-	-	-	-	-	-	-	-
* Glycerine	●	●	●	●	●	●	●	-	-	-	-	-	-	-
Glycol	●	●	●	●	●	●	●	-	-	-	-	-	-	-
Hydrobromic Acid	-	-	-	○	-	●	●	-	-	-	-	-	-	-
Hydrochloric Acid 10%	-	○	○	●	-	●	●	-	-	-	-	-	-	-
Hydrochloric Acid 30%	-	○	○	●	-	●	●	-	-	-	-	-	-	-
Hydrochloric Acid 96%	-	-	-	○	-	●	●	-	-	-	-	-	-	-
Hydrogen Peroxide 30%	●	-	●	-	●	-	●	-	-	-	-	-	-	-
Hydrogen Peroxide over 80%	●	○	○	-	●	●	●	-	-	-	-	-	-	-
* Hydrogen Sulphide	●	-	●	-	●	-	●	-	-	-	-	-	-	-
*§Hydrofluoric Acid 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
*§Hydrofluoric Acid 70%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lysol	●	-	-	-	●	●	●	-	-	-	-	-	-	-
Maleic Acid	●	-	-	-	●	●	●	-	-	-	-	-	-	-
Metal Salts (Iron Oxide, Zinc Oxide) and their aqueous solutions	-	●	●	●	○	●	●	-	-	-	-	-	-	-
Methanol	●	●	-	○	●	●	●	-	-	-	-	-	-	-
Methanol Aqueous	*	-	-	-	●	●	●	-	-	-	-	-	-	-
Methylene Chloride	○	-	-	-	-	●	●	-	-	-	-	-	-	-
Milk of Lime	-	●	●	○	●	ND	ND	-	-	-	-	-	-	-
Nitric Acid 10%	-	○	○	●	●	●	●	-	-	-	-	-	-	-
Nitric Acid 50%	1.●	-	-	-	●	●	●	-	-	-	-	-	-	-
Nitric Acid concentrate	1.●	-	-	-	-	●	●	-	-	-	-	-	-	-
Nitric Acid fuming	●	-	-	-	-	●	●	-	-	-	-	-	-	-
Ketones	●	-	-	○	●	●	●	-	-	-	-	-	-	-
Phosphoric Acid 20%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphoric Acid 50%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphoric Acid concentrate	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paraffins	-	●	-	-	-	-	-	-	-	-	-	-	-	-
Petrol	●	●	-	-	-	-	-	-	-	-	-	-	-	-
Petroleum Ether	●	○	○	○	●	●	●	-	-	-	-	-	-	-
Phenol up to 50°C	*	○	-	-	-	-	-	-	-	-	-	-	-	-
Pyridine	*●	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea Water 80%	○	●	●	○	●	●	●	-	-	-	-	-	-	-
Soap Suds	○	○	-	-	-	-	-	-	-	-	-	-	-	-
Soda Ash/Sodium Carbonate	-	●	●	-	-	-	-	-	-	-	-	-	-	-
Sulphuric Acid 10%	-	○	○	-	-	-	-	-	-	-	-	-	-	-
Sulphuric Acid 50%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphuric Acid concentrate	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphuric Acid fuming	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur Dioxide Dry/Wet	2.●	-	-	-	2.●	-	-	-	-	-	-	-	-	-
Sulphurous Acid 5%	○	○	●	-	○	ND	ND	-	-	-	-	-	-	-
Synthetic Detergent	-	●	●	●	●	●	●	-	-	-	-	-	-	-
Trichloethylene	*○	-	-	-	-	-	-	-	-	-	-	-	-	-
Turpentine	●	●	●	●	●	●	●	-	-	-	-	-	-	-
Water up to 70%	●	●	●	●	●	●	●	-	-	-	-	-	-	-
Xylene	●	-	-	-	●	○	○	-	-	-	-	-	-	-

●	Resistant
○	Resistant within limits
-	Not resistant
!	Resistant when saturated, resistant within limits when unsaturated
§	Mild attack – aqueous 1% & 5% at ambient temperature
§	Water – accelerates corrosion
§	at 40°C – Butyl Rubber is resistant
§	at 70°C – Butyl Rubber is not resistant
*	Coat glass with "Clear Shield"
ND	No data
1.	Varies with agitation and presence of Nitrogen Oxide
2.	Alum/SS304: Not resistant when Sulphur Dioxide is wet

NOTES:	Chloride Hydrocarbons
Aqueous – with water content in %	Carbon Tetrachloride
Anhydrous – free of water	Trichloethylene
Anhydride – crystallized	Methylene Chloride
Hydrocarbons:	Aromatic Hydrocarbons
Paraffins	Aniline
Ethyl Acetate	Benzene
Pyridine	Benzene derivatives (extractions)

LASCON[®] RELUX & REVIT CAPABILITIES

LASCON's professional lighting design team provides realistic 3D simulations for various projects from functional and aesthetic down to technical design. We are capable of architectural, landscape, outdoor and indoor application designs.

Using the most up-to-date simulation softwares, LASCON is able to generate realistic lighting designs to visualize exactly what the luminaire lighting distribution will look like in real life. This includes accurate lighting analysis calculations with a continuous focus on energy efficiency and luminaire efficacy.

Using Relux we are able to repeat photometric parameters for the assessment of a lighting installation. Relux is continuously being developed further to adapt to current standards and market requirements.

In Revit, a lighting fixture is a model element that emits light from one or more light sources. A lighting fixture is defined by a lighting fixture family. LASCON offers Revit files that are developed with flexibility in mind. LASCON offers models with tested and approved photometric data (IES files) and has added the necessary properties to adjust the model to your own needs.

- IES, LDT and Revit families available on request

RELUX[®] light simulation tools



AUTODESK[®] REVIT[™]



RECESSED LUMINAIRES



LEJ



LEJ



LEJ



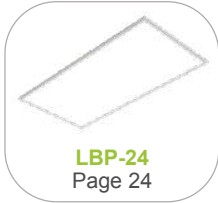
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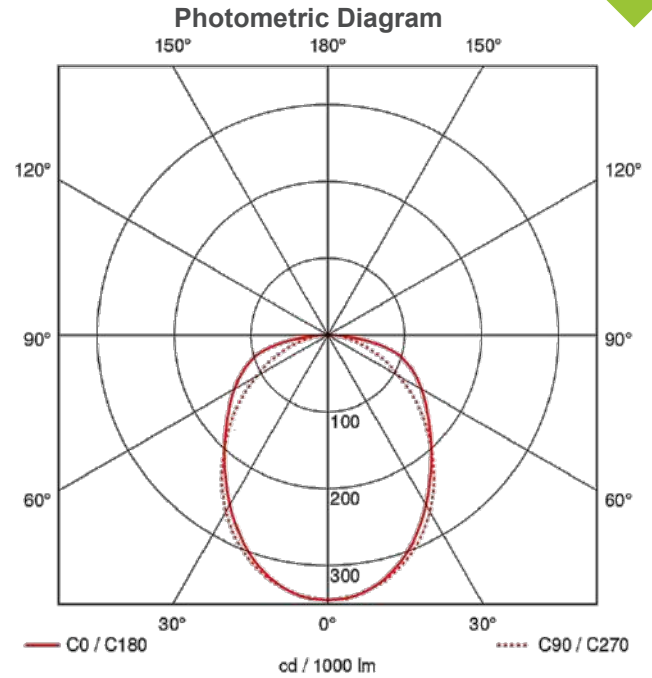
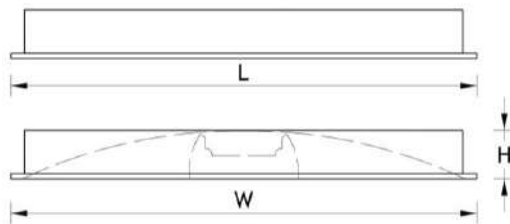


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Luminaire Efficiency: 87.41%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Offices
- Hospitals
- Lecture Halls
- Retail Stores

Benefits

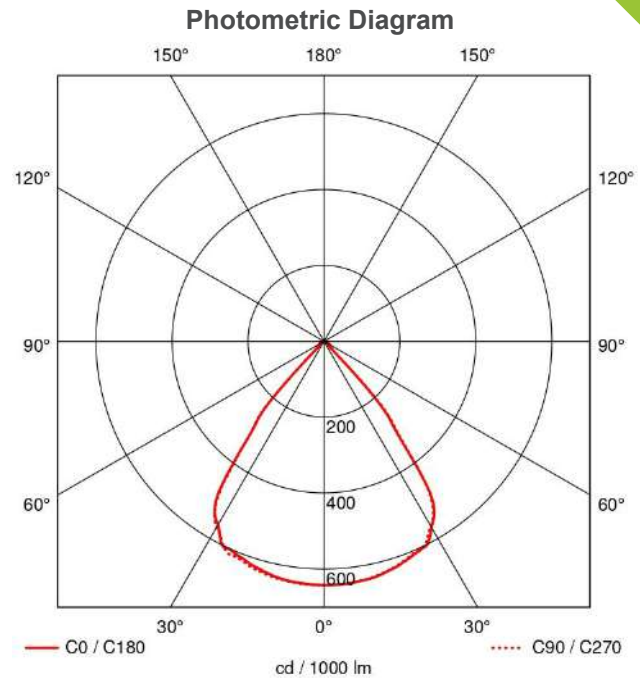
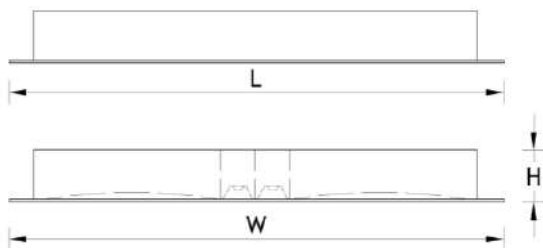
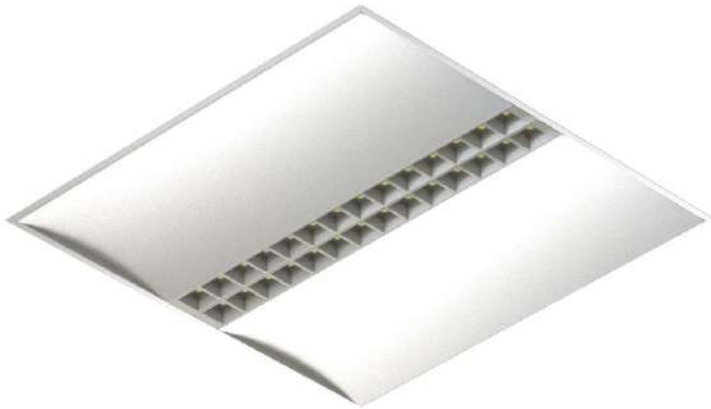
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- High transmission optic hides the LEDs
- DALI/DSI and dimmable options available
- Emergency options available
- Matt white infill panels for 1200 x 600 ceiling grid available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
RCM-22W-LED	4221	24.1W	0.98	250mA	597mm	597mm	61mm	4.6kg
RCM-34W-LED	6118	37.1W	0.98	375mA	597mm	597mm	61mm	4.6kg





Luminaire Efficiency: 95.1%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Retail Stores
- Educational Facilities
- Lecture Halls
- Offices

Benefits

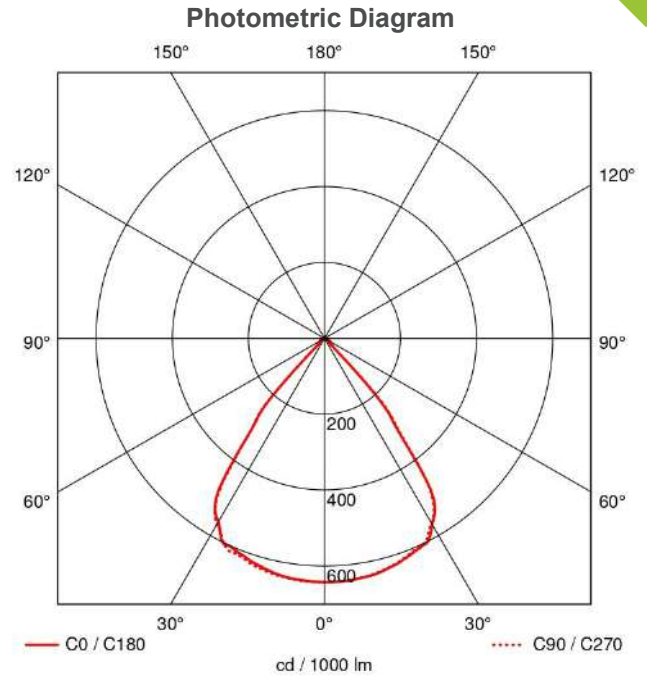
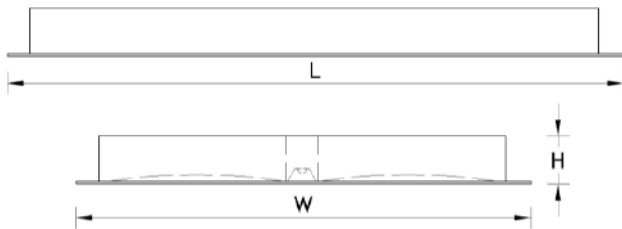
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Low glare optics
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
RCL-21W-LED	3995	23.1W	0.98	550mA	597mm	597mm	61mm	5.2kg
RCL-31W-LED	5595	34.1W	0.98	800mA	597mm	597mm	61mm	5.2kg





Luminaire Efficiency: 95.1%

Life/ Maintenance

- LED Driver Average Rated Life 100 000hrs
- LED Life 72 000hrs (L80 F10, TP 65°C)

Application

- Retail Stores
- Educational Facilities
- Lecture Halls
- Offices

Benefits

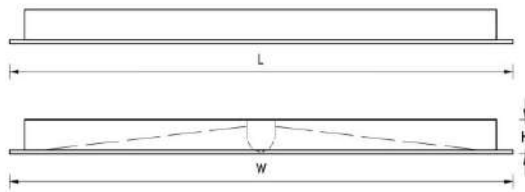
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

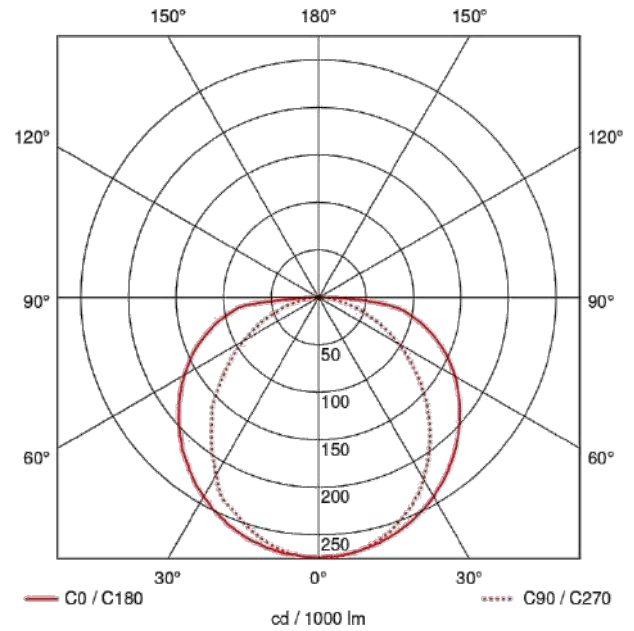
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Low glare optics
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
RCL-L-21W-LED	3995	23.1W	0.98	550mA	1197mm	597mm	61mm	9.5kg
RCL-L-31W-LED	5595	34.1W	0.98	800mA	1197mm	597mm	61mm	9.5kg





Photometric Diagram



Luminaire Efficiency: 85.58%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Retail Stores
- Laboratories
- Lecture Halls
- Commerce

Benefits

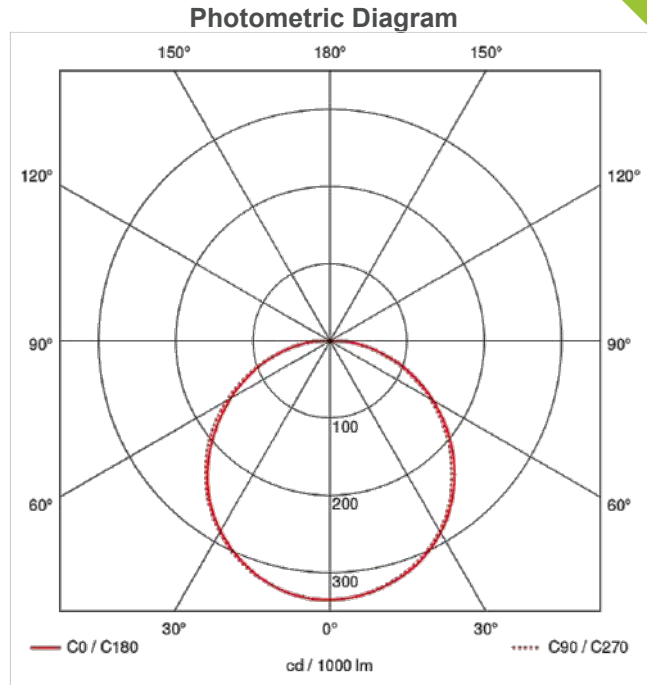
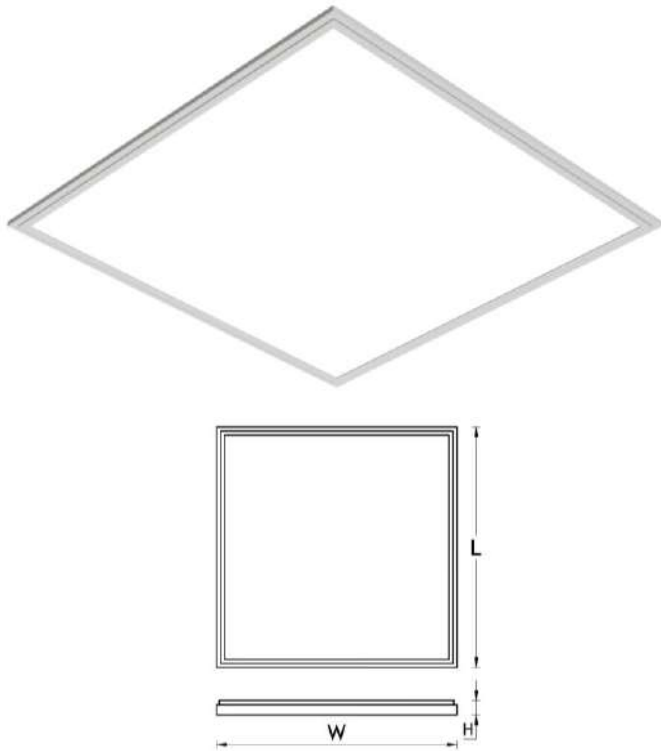
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- High transmission optic hides the LEDs
- DALI/DSI and dimmable options available
- Emergency options available
- Direct replacement for 3x18W and 3x36W T8

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
RCS-18W-LED	3280	19.9W	0.98	400mA	597mm	597mm	60mm	5kg
RCS-24W-LED	4561	26.7W	0.98	275mA	1197mm	597mm	60mm	9.6kg
RCS-34W-LED	6118	37.1W	0.98	375mA	1197mm	597mm	60mm	9.6kg
RCS-43W-HO-LED	7986	47.8W	0.98	375mA	1197mm	597mm	60mm	9.6kg
RCS-54W-HO-LED	9838	59.5W	0.98	400mA	1197mm	597mm	60mm	9.6kg





Luminaire Efficiency: 100%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L80 B10, TP 45°C) |

Application

- | | |
|--------------|------------------------|
| • Offices | • Education Facilities |
| • Healthcare | • Retail Stores |

Benefits

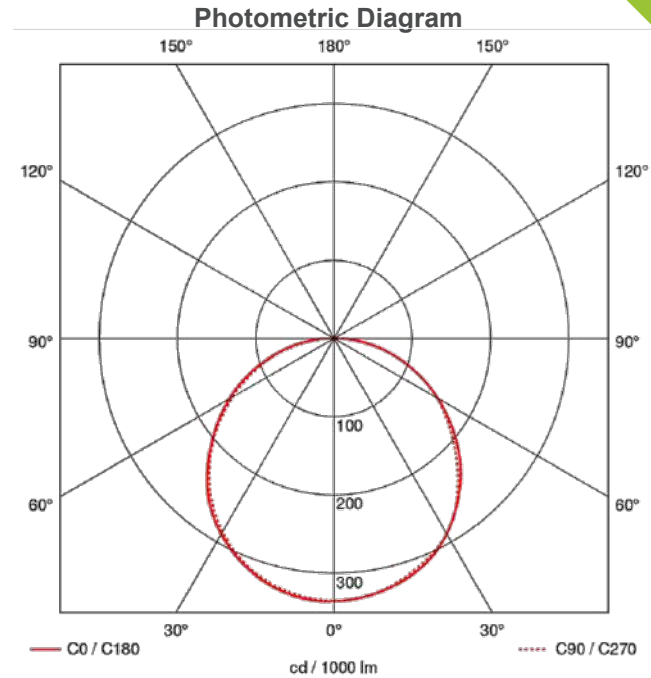
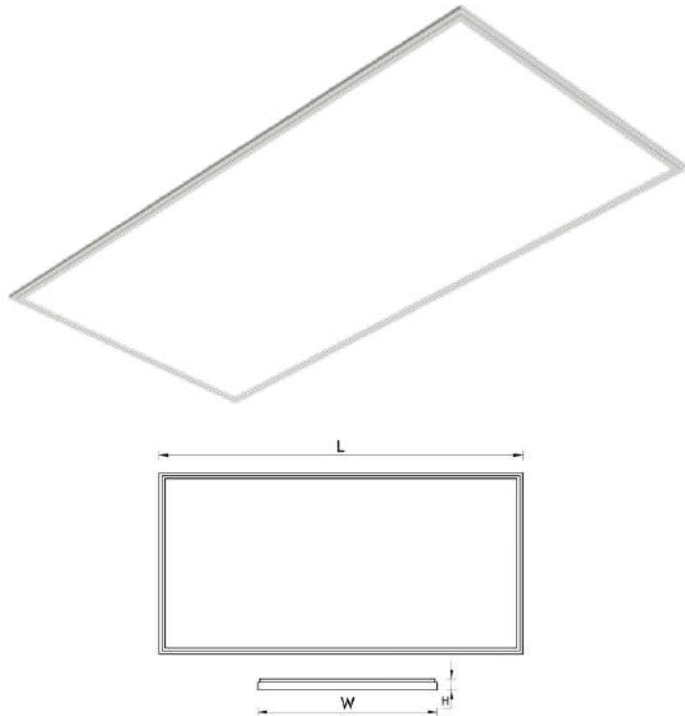
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 83
- Colour temperature 4000K, 5000K or 6000K
- Ambient temperature: -20...+40°C
- Back-lit LED technology
- Tridonic driver
- 3m cabtyre and 5 Amp plug (Available on request)
- Ideal retrofit solution for ceiling up to 3.5m
- 120° wide beam angle
- Opal optic diffuser

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
LBP-22-40W-LED	3883	38.9W	0.9	1000mA	595mm	595mm	36mm	2.7kg





Luminaire Efficiency: 100%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L80 B10, TP 45°C)

Application

- Offices
- Healthcare
- Education Facilities
- Retail Stores

Benefits

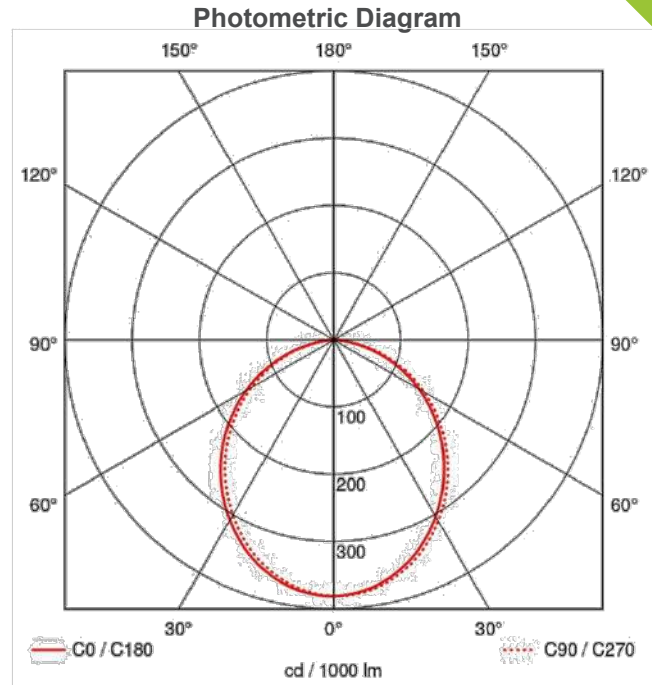
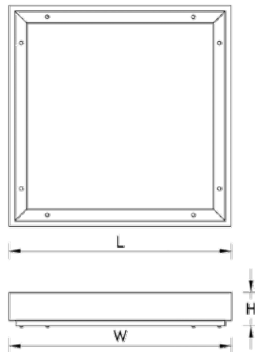
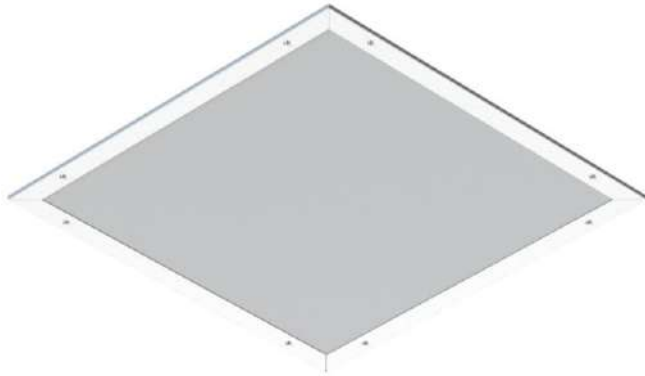
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 83
- Colour temperature 4000K, 5000K or 6000K
- Ambient temperature: -20...+40°C
- Back-lit LED technology
- Tridonic driver
- 3m cabtyre and 5 Amp plug (Available on request)
- Ideal retrofit solution for ceiling up to 3.5m
- 120° wide beam angle
- Opal optic diffuser

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
LBP-24-60W-LED	5975	59.6W	0.9	1000mA	1195mm	595mm	36mm	4.1kg





Luminaire Efficiency: 49%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Healthcare Offices
- Healthcare Facilities
- Operating Theatre
- Clinics

Benefits

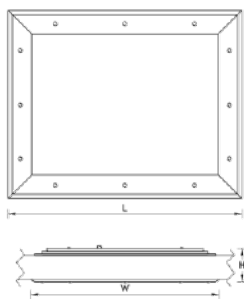
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

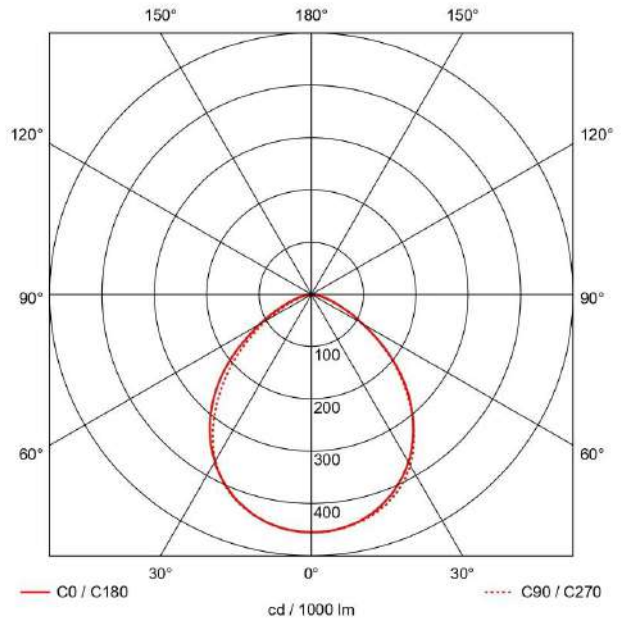
- High colour rendering index CRI > 97
- Colour temperature 4000K (3000K on request)
- Cyanosis Observation Index (COI) or 2.3
- (Max allowance < 3.3)
- 3m Cabtyre with 5Amp plug available on request
- Ripple current < 3%
- All fixtures component parts are replaceable
- Integral LED driver
- For installation of 50mm to 100mm ISO board with adjustable frame
- High efficiency back-lit opal diffuser
- IP40 and tamper proof screws
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
FM911-40W-LED	7440	44W	0.95	250mA	595mm	595mm	90mm	5.3kg
FM911-80W-LED	14880	88W	0.95	250mA	1180mm	595mm	90mm	10.9kg





Photometric Diagram



Luminaire Efficiency: 69%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Clean Room Facilities
- Laboratories
- Operating Theatres
- Cold Room

Benefits

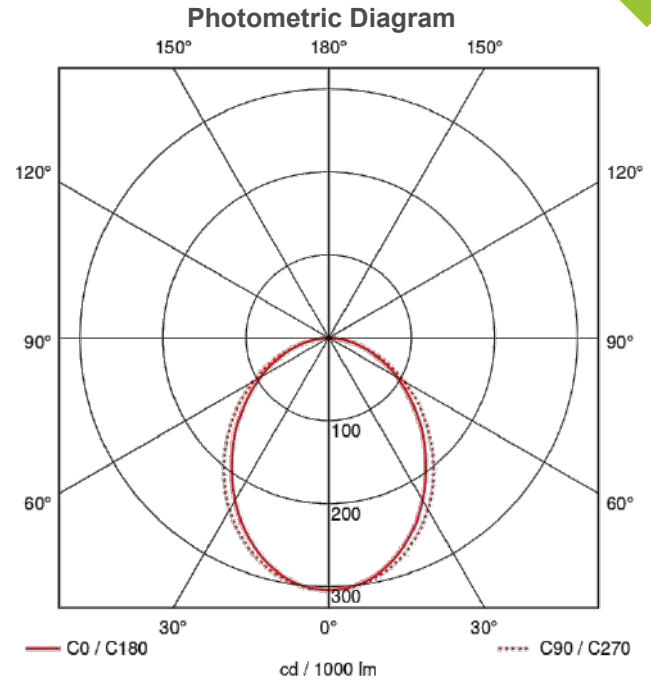
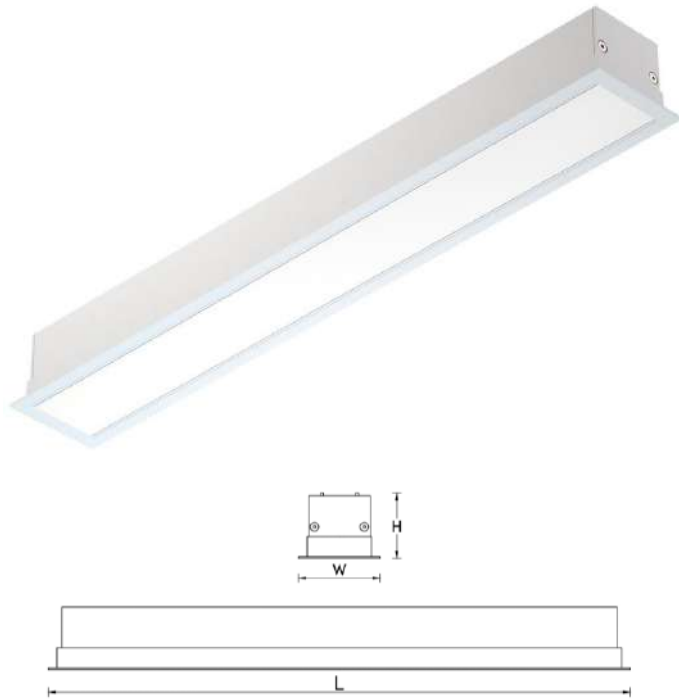
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K or 3000K
- Small colour tolerance – MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient Temperature: -25... +45°C
- Designed for clean room environments with sealed glass
- For installation of 50mm to 100mm ISO board with adjustable frame
- Dual entry for top and bottom entry for maintenance
- Toughened pacific glass diffuser
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
HV-40W-LED	7664	43.3W	0.98	225mA	720mm	560mm	80-135mm	15kg
HV-80W-LED	15328	86.6W	0.98	225mA	1320mm	560mm	80-135mm	29kg





Luminaire Efficiency: 73.6%

Life/ Maintenance

- LED Driver Average Rated Life 100 000hrs
- LED Life 72 000hrs (L80 F10, TP 65°C)

Application

- Offices
- Retail Stores
- Lecture Halls
- Reception Areas

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ambient temperature: -25...+45°C
- Surface or suspended luminaire
- Extruded aluminium body with frosted acrylic diffuser
- Available in matt black or white aluminium
- DALI/DSI and dimmable options available
- Emergency options available
- Custom lengths to order
- Available in standard 600mm, 1200mm, 1800mm, 2400mm
- Multiple wattage and lumen packages available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight	
					Cut Out	L	W		H
H-PRO-R-12W-LED-600	2574	14.4W	0.98	275mA	590x80mm	610mm	92mm	66mm	0.65kg
H-PRO-R-24W-LED-1200	4561	26.7W	0.98	275mA	1150x80mm	1170mm	92mm	66mm	1,3kg
H-PRO-R-36W-LED-1800	6841	40.2W	0.98	275mA	1780x80mm	1800mm	92mm	66mm	1.95kg
H-PRO-R-48W-LED-2400	9122	53.4W	0.98	275mA	2412x80mm	2433mm	92mm	66mm	2.6kg



SURFACE AND SUSPENDED LUMINAIRES



LEJ



LEJ



LEJ



LEJ



LEJ



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LEJ

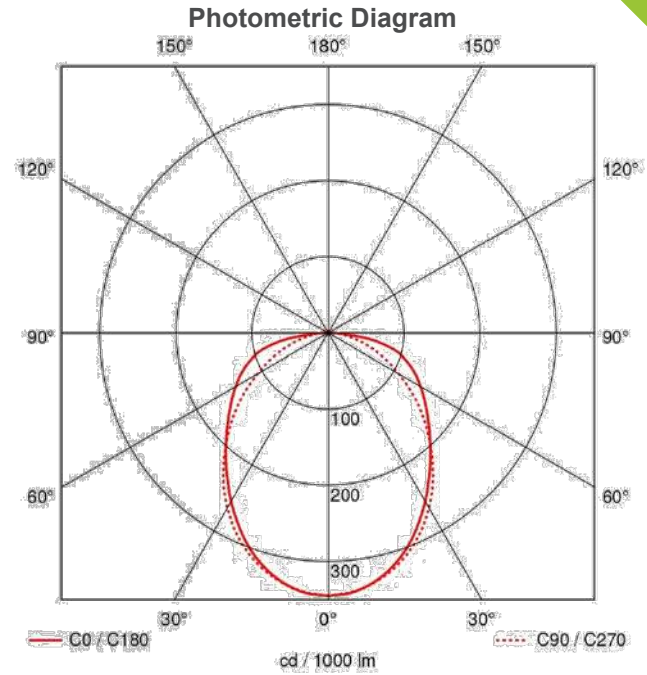
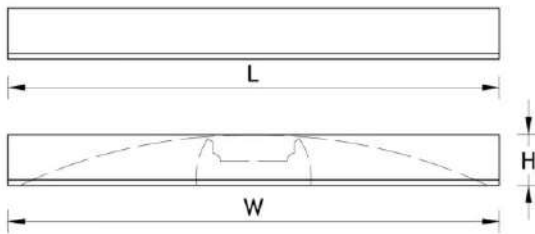


LEJ



LEJ





Luminaire Efficiency: 87.41%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Offices
- Hospitals
- Lecture Halls
- Retail Stores

Benefits

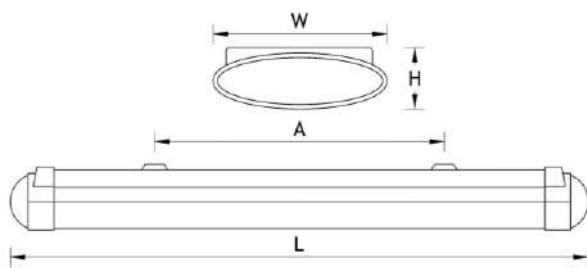
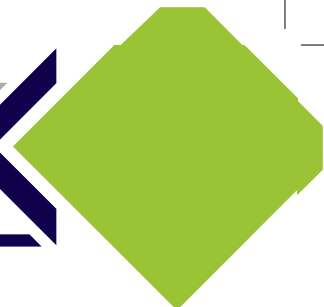
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

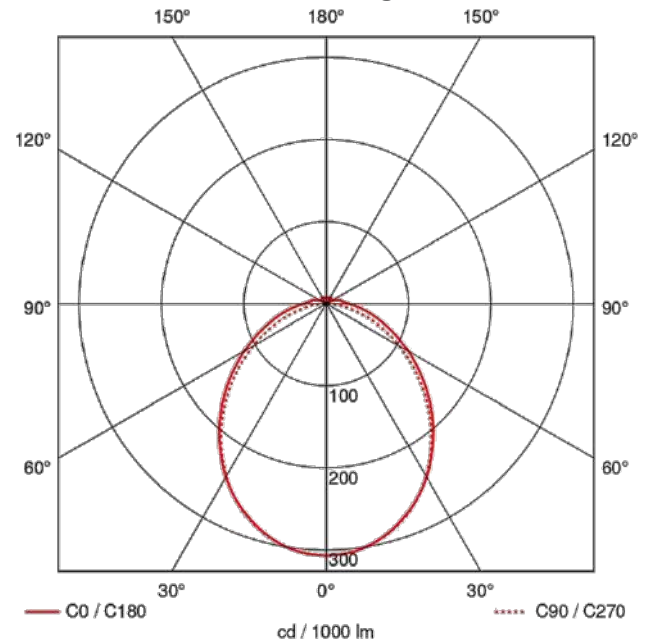
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Surface mount
- High transmission optic hides the LEDs
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
RCM-S-22W-LED	4221	24.1W	0.98	250mA	597mm	597mm	61mm	5.6kg
RCM-S-34W-LED	6118	37.1W	0.98	375mA	597mm	597mm	61mm	5.6kg





Photometric Diagram



Luminaire Efficiency: 84.67%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Offices
- Hospitals
- Passages
- Schools

Benefits

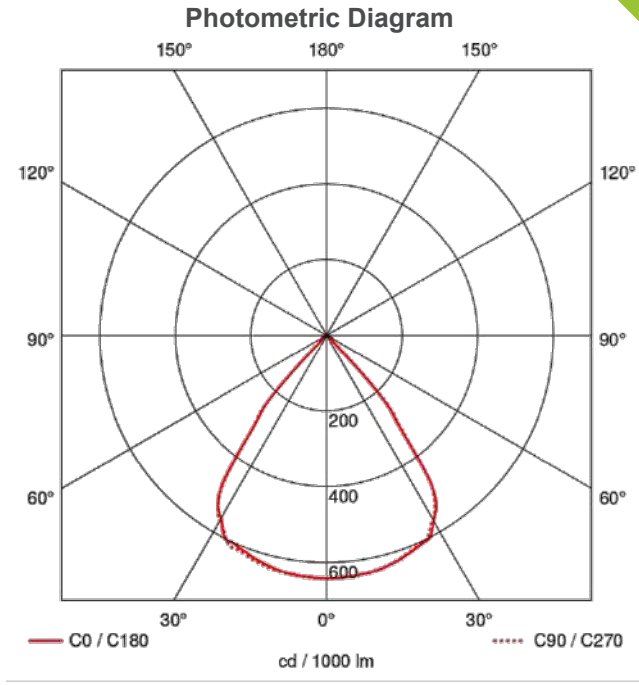
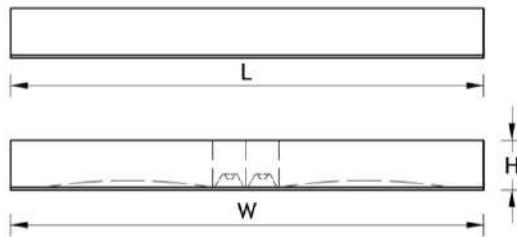
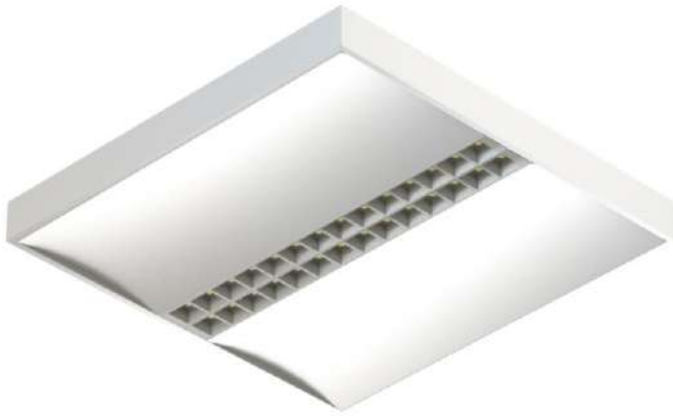
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Snap-on injection moulded plastic end-caps
- Frosted prismatic diffuser
- Individual mounting and continuous row mounting (mid cap assembly ordered separately)
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions				Weight
					L	A	W	H	
M6V-24W-LED	4561	26.7W	0.98	275mA	683mm	460mm	208mm	77mm	1.6kg
M6V-34W-LED	6118	37.1W	0.98	375mA	683mm	460mm	208mm	77mm	1.6kg
M6V-40W-LED	7664	43.3W	0.98	225mA	1250mm	800mm	208mm	77mm	2.2kg
M6V-54W-LED	9878	58.8W	0.98	300mA	1250mm	800mm	208mm	77mm	2.2kg





Luminaire Efficiency: 95.1%

Life/ Maintenance

- LED Driver Average Rated Life 100 000hrs
- LED Life 72 000hrs (L80 F10, TP 65°C)

Application

- Offices
- Retail Stores
- Educational Facilities
- Lecture Halls

Benefits

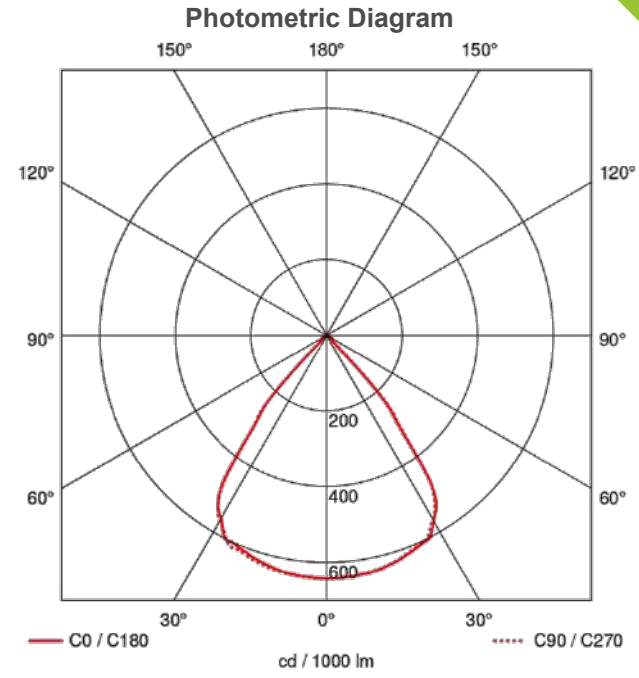
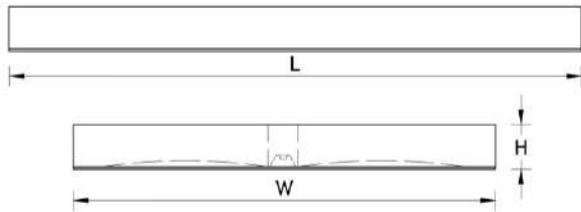
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Low glare optics
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
RCL-S-21W-LED	3995	23.1W	0.98	550mA	597mm	597mm	61mm	5.1kg
RCL-S-31W-LED	5595	34.1W	0.98	800mA	597mm	597mm	61mm	5.1kg





Luminaire Efficiency: 95.1%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Offices
- Retail Stores
- Educational Facilities
- Lecture Halls

Benefits

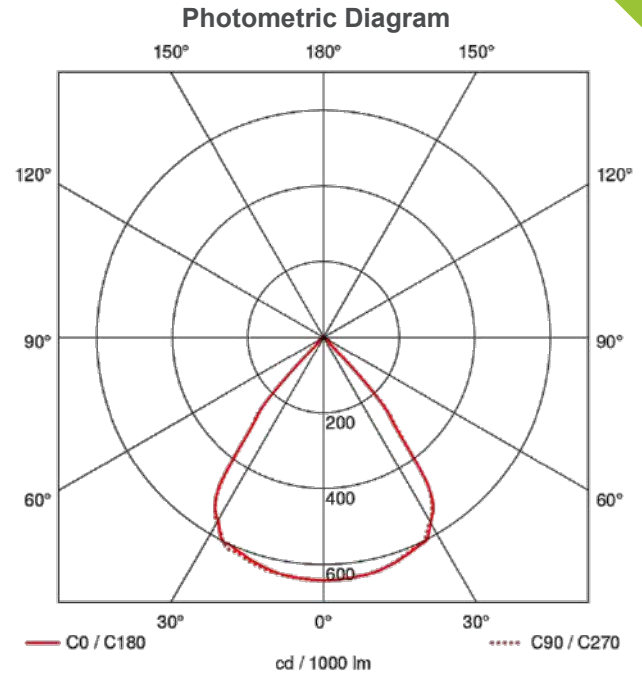
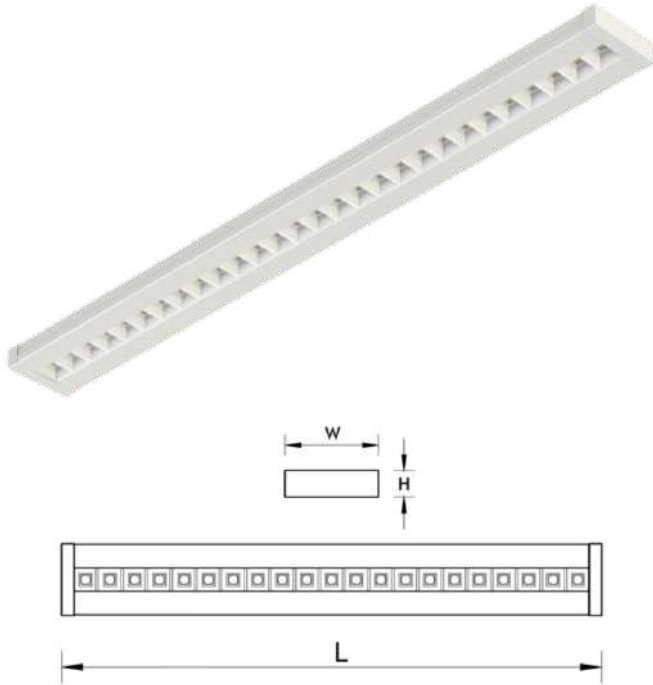
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Low glare optics
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
RCL-S-L-21W-LED	3995	23.1W	0.98	550mA	1197mm	597mm	61mm	9.5kg
RCL-S-L-31W-LED	5595	34.1W	0.98	800mA	1197mm	597mm	61mm	9.5kg





Luminaire Efficiency: 95.1%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 100 000hrs |
| • LED Life | 72 000hrs (L80 F10, TP 65°C) |

Application

- | | |
|------------|-------------------|
| • Offices | • Reception Areas |
| • Passages | • Study Halls |

Benefits

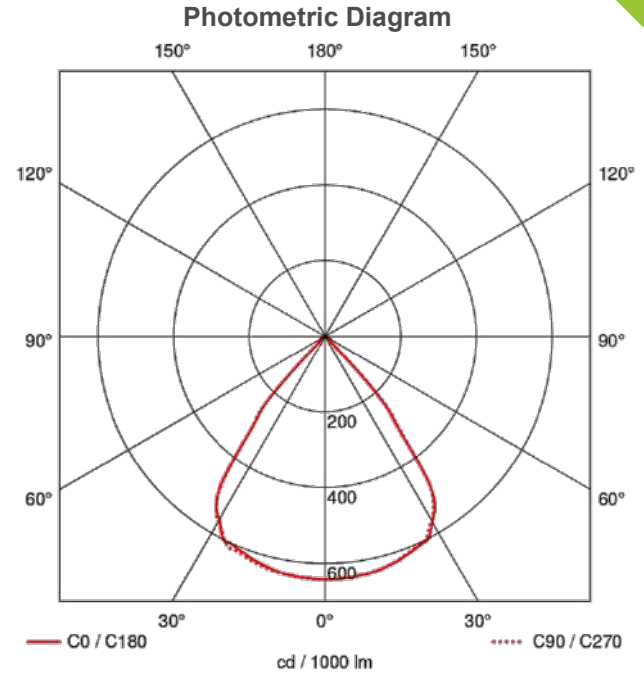
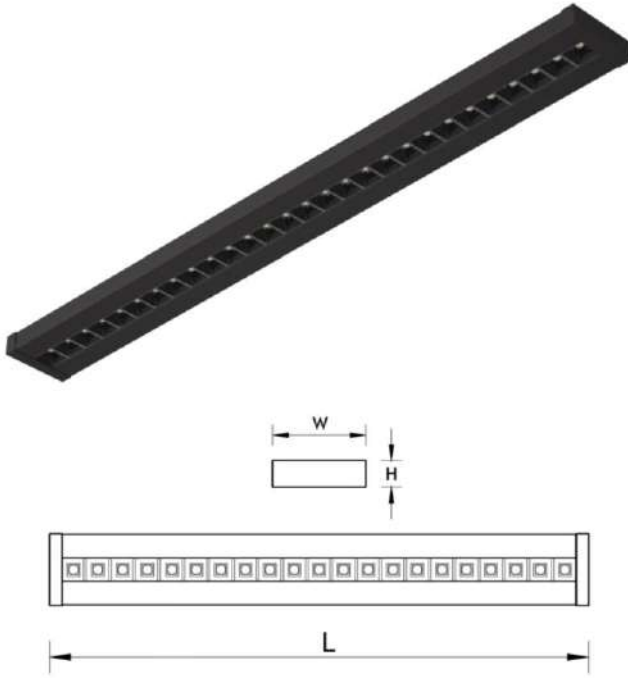
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Low glare optics
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
SCL-W-21W-LED	3995	23.1W	0.98	550mA	1260mm	175mm	53mm	2.7kg
SCL-W-31W-LED	5595	34.1W	0.98	800mA	1260mm	175mm	53mm	2.7kg





Luminaire Efficiency: 95.1%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Offices
- Reception Areas
- Passages
- Study Halls

Benefits

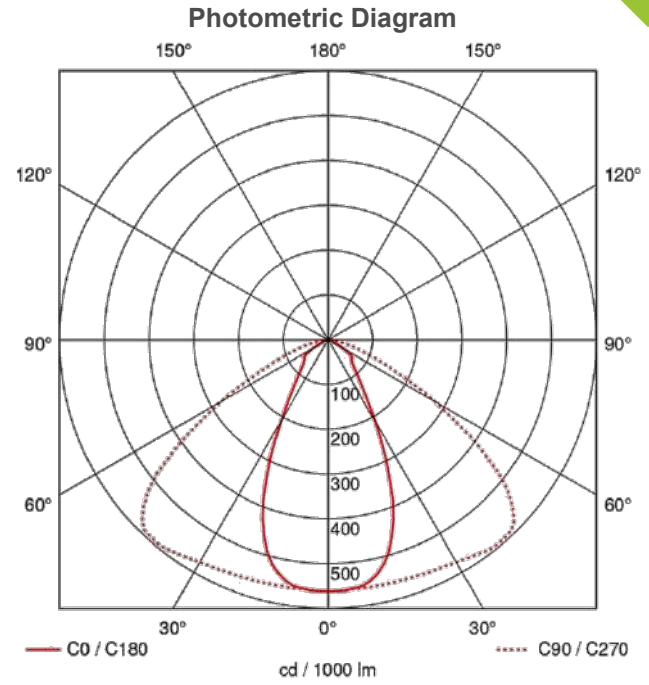
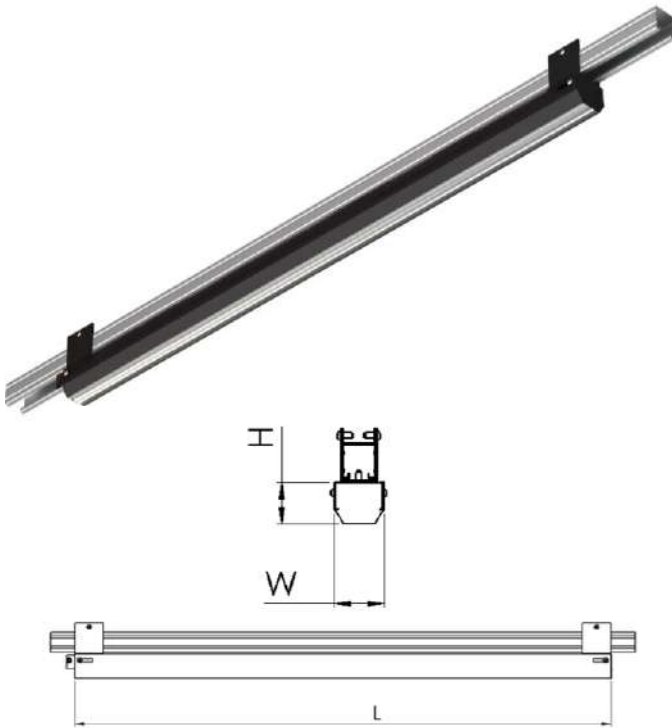
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Low glare optics
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
SCL-B-21W-LED	3995	23.1W	0.98	550mA	1260mm	175mm	53mm	2.7kg
SCL-B-31W-LED	5595	34.1W	0.98	800mA	1260mm	175mm	53mm	2.7kg





Luminaire Efficiency: 92.3%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Supermarkets
- Aisle Lighting
- Sport Halls
- Warehouses

Benefits

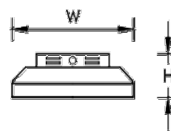
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

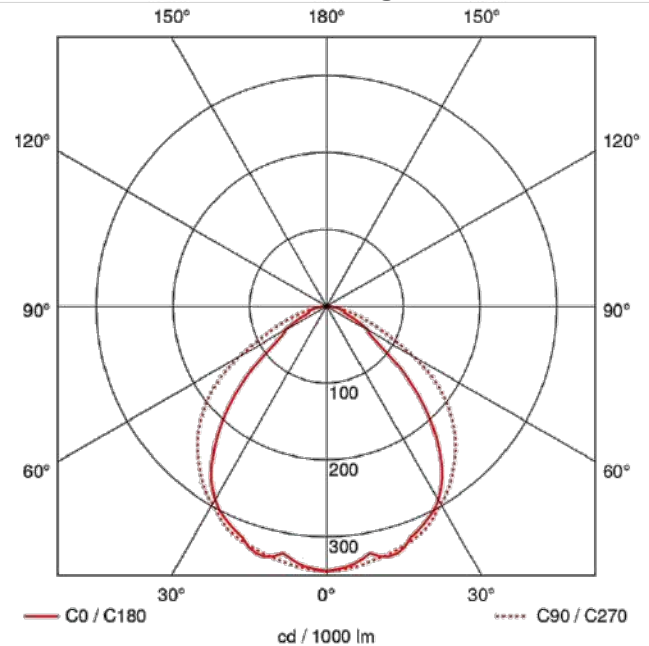
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Single mount or continuous row lighting
- Supplied with fish plates for continuous row lighting
- End-caps ordered separately
- Suitable for mounting on trunking
- Suspension cables supplied separately
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency and high output versions

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
RAIL-N-55W-LED	10263	61.5W	0.98	275mA	1680mm	60mm	48mm	2.3kg
RAIL-N-80W-LED	14757	89.2W	0.98	400mA	1680mm	60mm	48mm	2.3kg





Photometric Diagram



Luminaire Efficiency: 80.37%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Retail Stores
- Food Stores
- Hypermarkets
- Furniture Stores

Benefits

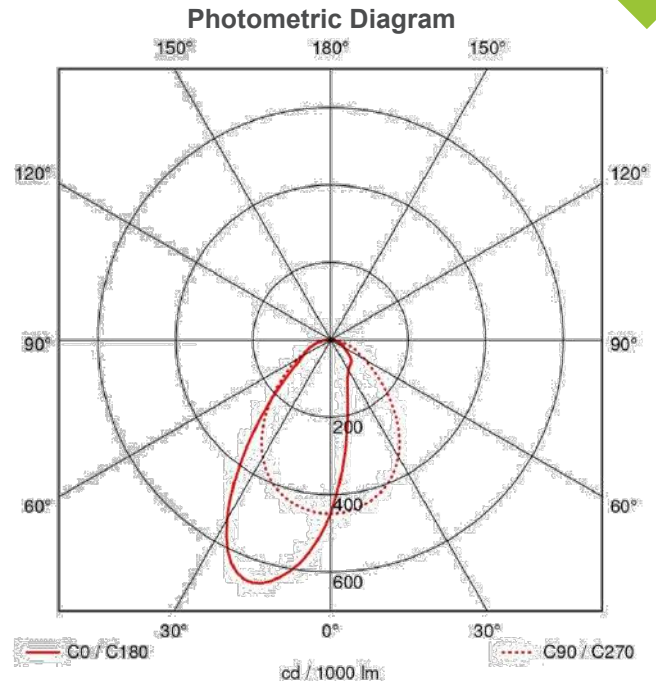
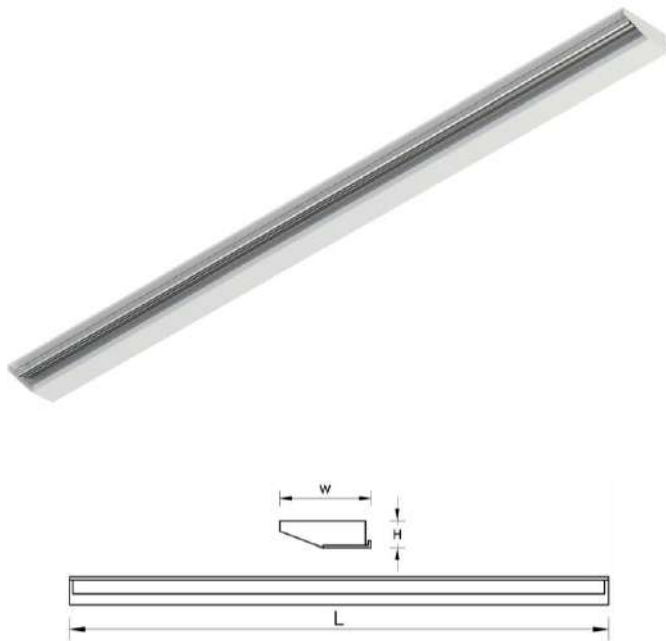
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Designed for quick and easy installations, it comes complete with 2xP2000 mounting brackets and 4xM5 eyebolts
- Complete with 3m cable and 5 Amp plug
- Complete with decorative diffuser
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency and high output versions

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
R-BAY-68W-LED	12236	74.1W	0.98	375mA	1195mm	240mm	105mm	5.3kg
R-BAY-100W-LED	18355	111.1W	0.98	375mA	1195mm	240mm	105mm	5.3kg





Life/ Maintenance

- LED Driver Average Rated Life 100 000hrs
- LED Life 72 000hrs (L80 F10, TP 65°C)

Application

- Retail Stores
- Fashion Stores
- Food Stores
- Lecture Rooms

Benefits

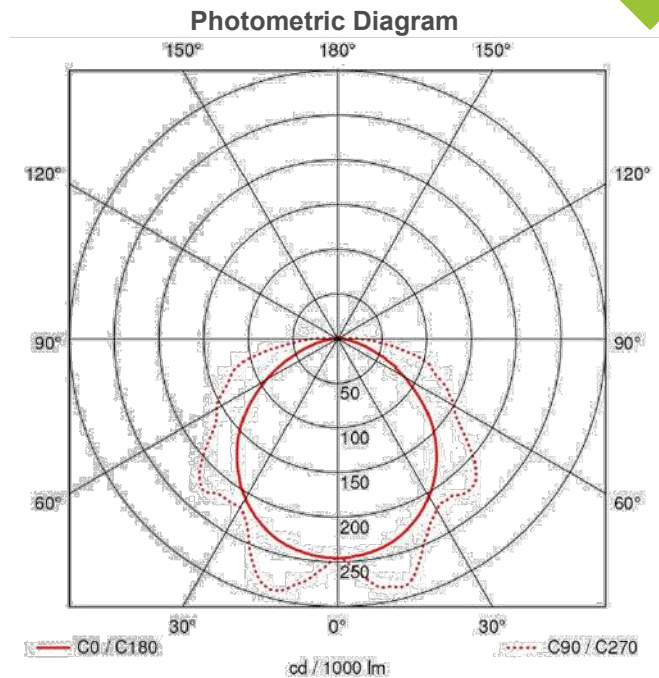
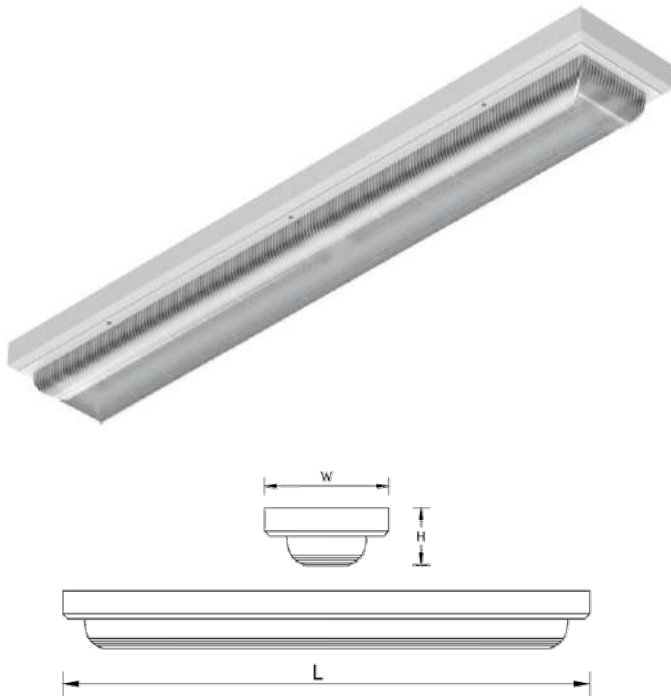
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Provides uniform illumination of the vertical surface from the ceiling
- Optic hides the LEDs
- DALI/DSI and dimmable options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
RAN-22W-LED	4221	24.1W	0.98	250mA	1130mm	80mm	30mm	1.8kg
RAN-34W-LED	6118	37.1W	0.98	375mA	1130mm	80mm	30mm	1.8kg





Luminaire Efficiency: 88.9%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Prison Cells
- Psychiatric Hospitals
- Holding Cells
- High Security Areas

Benefits

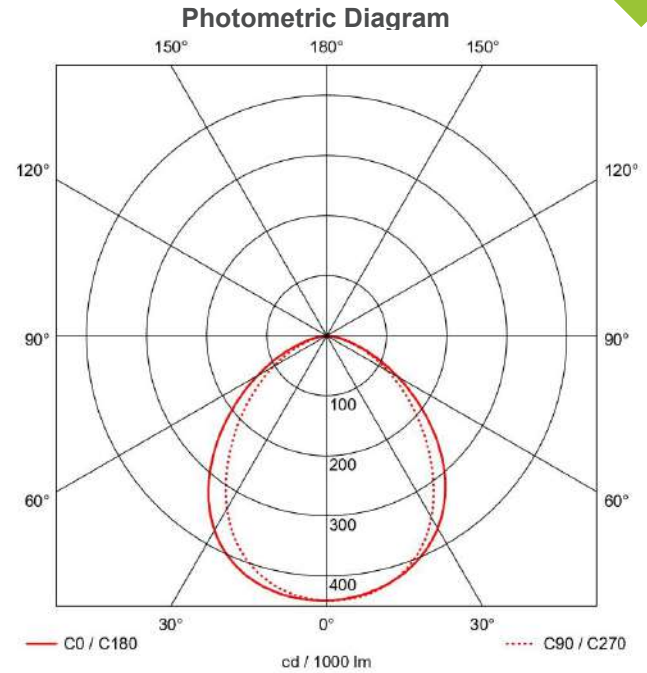
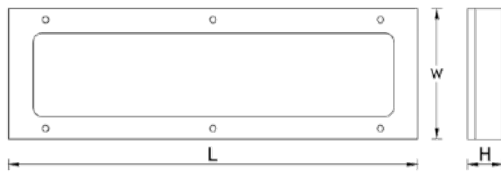
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- "Snake eye" tamper proof screws hold the diffuser in place and are removable with a special tool
- Optic hides the LEDs
- Approved luminaire by the department of correctional services
- One-piece injection moulded self-extinguishing UV stabilized polycarbonate diffuser
- Available with night light
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
TP-26W-LED	5180	28.5W	0.98	150mA	1299mm	210mm	120mm	8kg
TP-36W-LED	6865	38.3W	0.98	200mA	1299mm	210mm	120mm	8kg





Luminaire Efficiency: 91.55%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Prison Cells
- Holding Cells
- Psychiatric Hospitals
- High Security Areas

Benefits

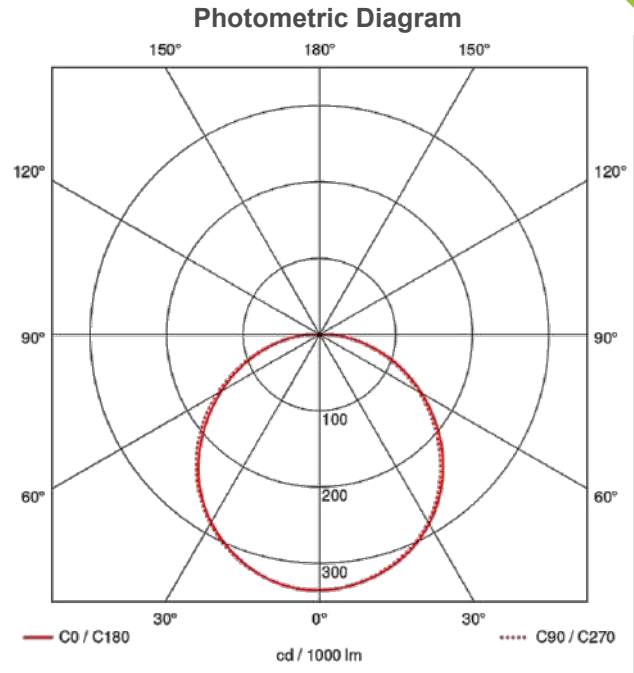
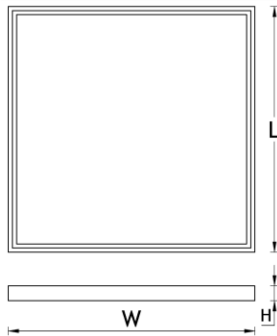
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- Colour temperature 4000K (3000K on request)
- Ambient temperature: -25...+45°C
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Easy removable gear tray for maintenance
- Tamper proof screws hold the diffuser in place and are removable with a special tool
- Standard 8mm High Impact Acrylic Diffuser with opal diffuser
- Body manufactured from 1mm stainless steel and powder coated
- Approved luminaire by the department of correctional services
- Available with night light (DALI controlled)
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
VP-34W-LED	6118	37.1W	0.98	375mA	630mm	290mm	65mm	5kg
VP-54W-LED	9878	58.5W	0.98	300mA	1230mm	290mm	65mm	11kg





Luminaire Efficiency: 100%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L80 B10, TP 45°C) |

Application

- | | |
|--------------|------------------------|
| • Offices | • Retail |
| • Healthcare | • Education Facilities |

Benefits

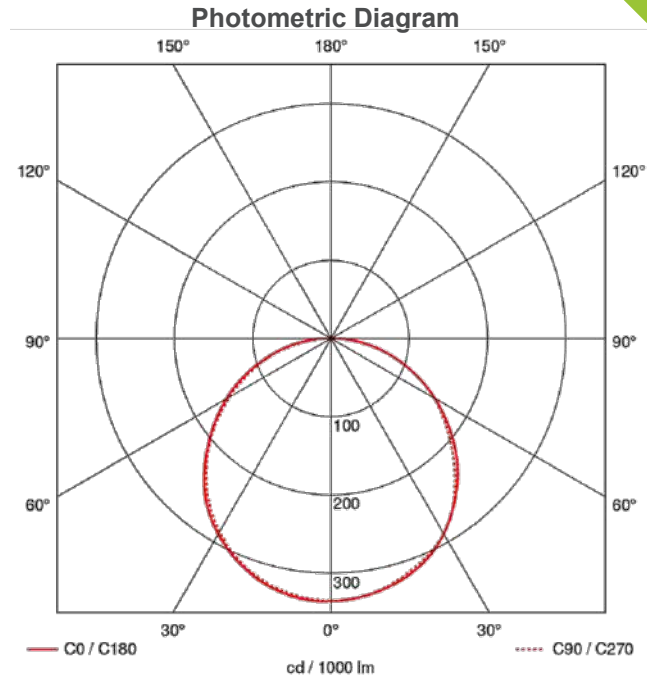
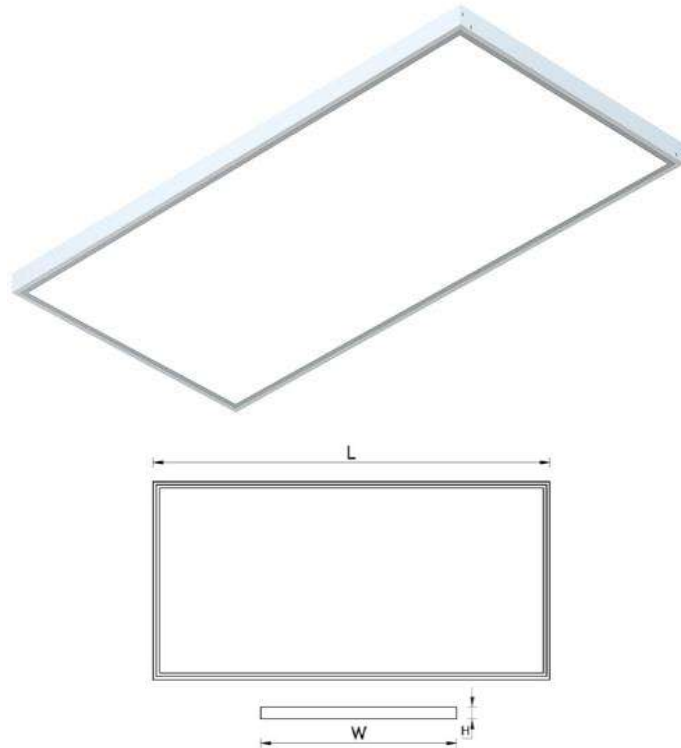
- 5 Year warranty
- Built-in surge Protection

Product Features and Accessories

- Back-Lit technology
- Tridonic driver
- High colour rendering index CRI > 80
- Colour temperature 4000K or 3000K
- Ambient temperature: -20...+40°C
- 3m cable and 5 Amp plug (available on request)
- Ideal retrofit solution for ceilings up to 3.5m
- 120° wide beam angle
- Opal optic diffuser
- Suspension kits available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
LBP-22-S-40W-LED	3883	38.9W	0.9	1000mA	601mm	601mm	45mm	5kg





Luminaire Efficiency: 100%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L80 B10, TP 45°C)

Application

- Offices
- Healthcare
- Retail
- Education Facilities

Benefits

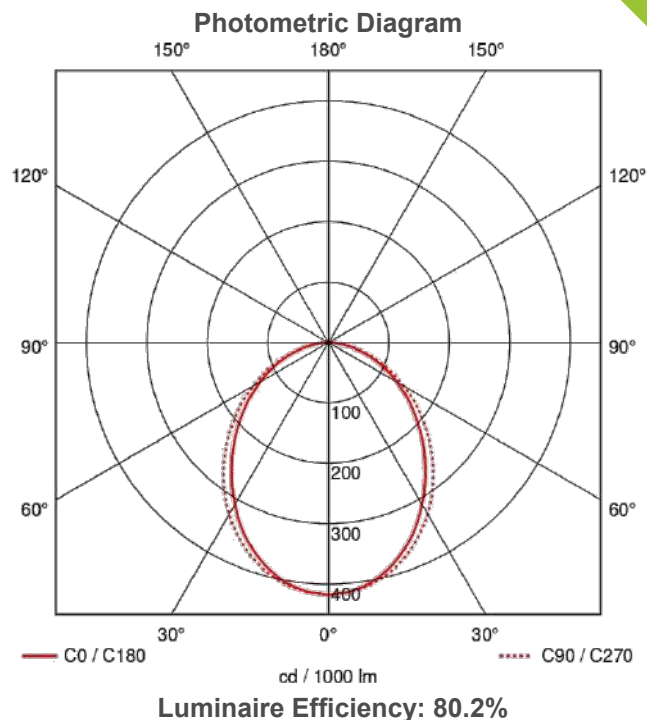
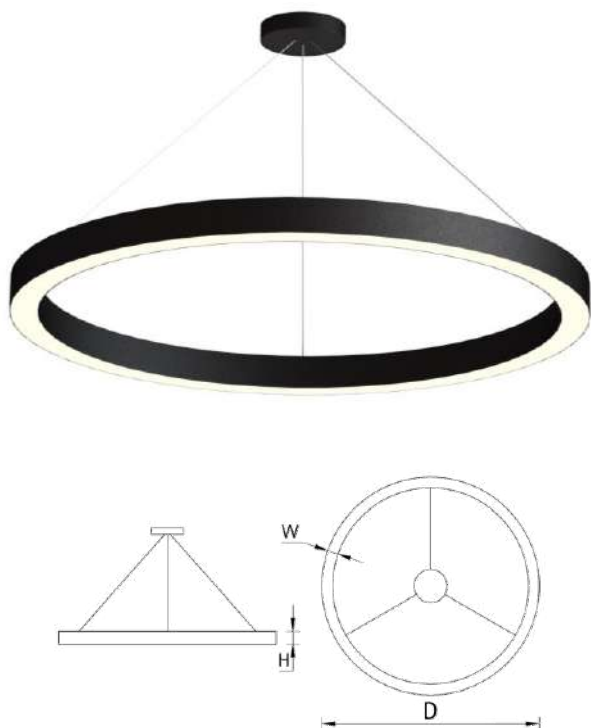
- 5 Year warranty
- Built-in surge Protection

Product Features and Accessories

- Back-Lit technology
- Tridonic driver
- High colour rendering index CRI > 80
- Colour temperature 4000K or 3000K
- Ambient temperature: -20...+40°C
- 3m cabtyre and 5 Amp plug (available on request)
- Ideal retrofit solution for ceilings up to 3.5m
- 120° wide beam angle
- Opal optic diffuser
- Suspension kits available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
LBP-24-S-60W-LED	5975	59.6W	0.9	1000mA	1201mm	601mm	45mm	6.6kg





Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L80 F10, TP 45°C)

Application

- Retail
- Hotels
- Reception Areas
- Residential

Benefits

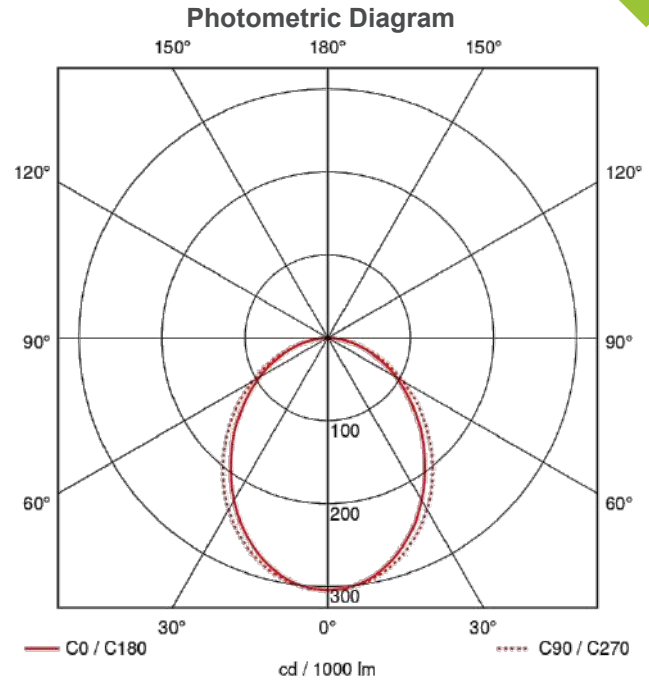
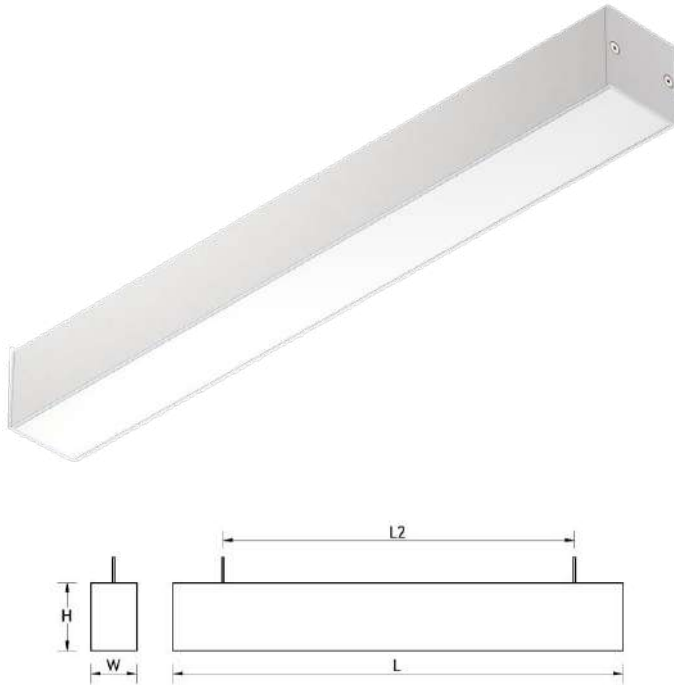
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K or 3000K
- Tridonic LED driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -20...+45°C
- Extruded aluminium with epoxy powder coated finish
- Flexible silicone diffuser
- Clear power cable for suspension versions
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					D	W	H	
HALO-60W-LED	6660	60.2W	0.98	300mA	1000mm	50mm	60mm	3.3kg
HALO-90W-LED	9985	90.4W	0.98	300mA	1500mm	50mm	60mm	5.8kg
HALO-180W-LED	19970	180.8W	0.98	300mA	3000mm	50mm	60mm	10.3kg





Luminaire Efficiency: 73.6%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 100 000hrs |
| • LED Life | 72 000hrs (L80 F10, TP 65°C) |

Application

- | | |
|-----------------|-------------------|
| • Offices | • Lecture Halls |
| • Retail Stores | • Reception Areas |

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ambient temperature: -25...+45°C
- Surface or suspended luminaire
- Extruded aluminium body with frosted acrylic diffuser
- Available in matt black or white aluminium
- DALI/DSI and dimmable options available
- Emergency options available
- Custom lengths to order
- Available in standard 600mm, 1200mm, 1800mm, 2400mm
- Multiple wattage and lumen packages available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions				Weight
					L	L2	W	H	
H-PRO-S-12W-LED-600	2574	14.4W	0.98	275mA	580mm	530mm	62mm	66mm	0.65kg
H-PRO-S-24W-LED-1200	4561	26.7W	0.98	275mA	1140mm	1090mm	62mm	66mm	1.3kg
H-PRO-S-36W-LED-1800	6841	40.2W	0.98	275mA	1770mm	1720mm	62mm	66mm	1.95kg
H-PRO-S-48W-LED-2400	9122	53.4W	0.98	275mA	2400mm	2350mm	62mm	66mm	2.6kg



CHANNELS & BATTENS



LEJ



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LEJ



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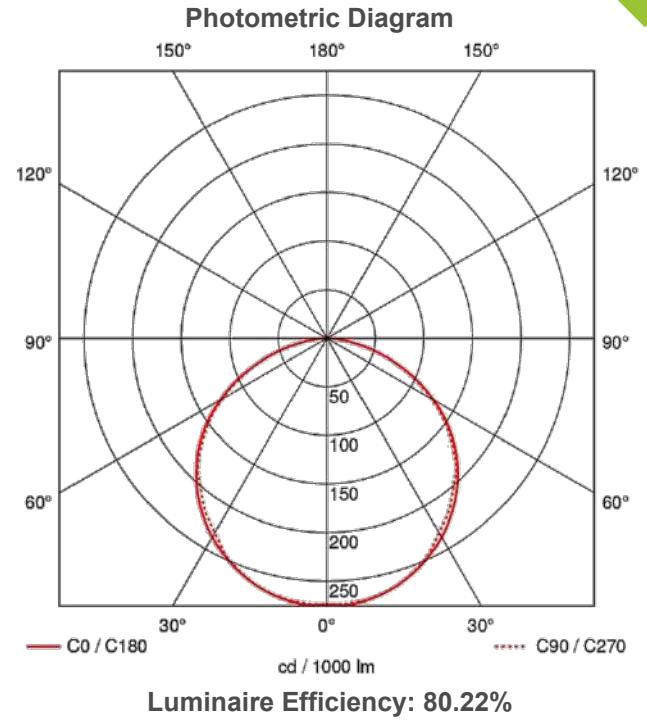
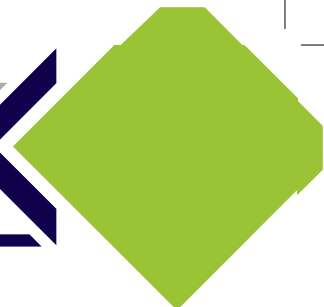


LEJ



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Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Cove Lighting
- Storage Rooms
- Retail Lighting
- Passage Lighting

Benefits

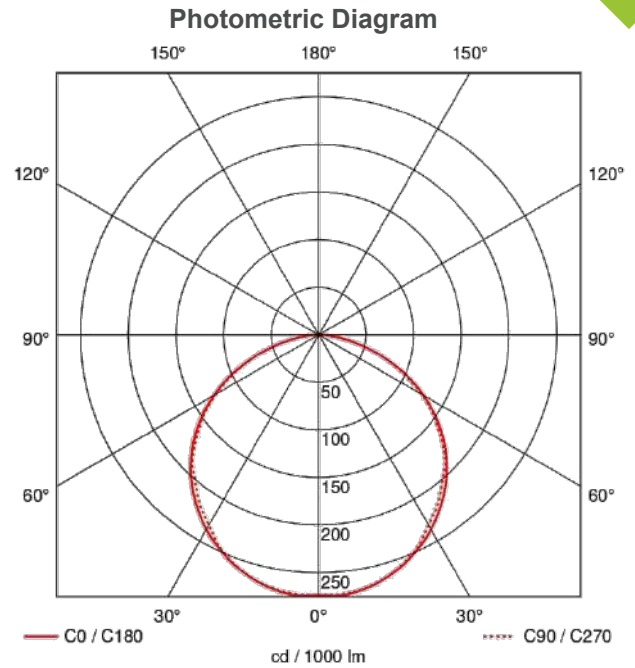
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Semi-transparent PMMA diffuser
- Polycarbonate end-caps
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency version

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
BATTEN-17W-LED-HE	3433	19.1W	0.98	200mA	1180mm	44mm	73mm	1.5kg
BATTEN-24W-LED-HE	4561	26.7W	0.98	275mA	1180mm	44mm	73mm	1.5kg
BATTEN-31W-LED-HE	5717	34.5W	0.98	350mA	1180mm	44mm	73mm	1.5kg
BATTEN-36W-LED-HE	6559	39.7W	0.98	400mA	1180mm	44mm	73mm	1.5kg





Luminaire Efficiency: 80.22%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Class Rooms
- Storage Rooms
- Retail Lighting
- Passage Lighting

Benefits

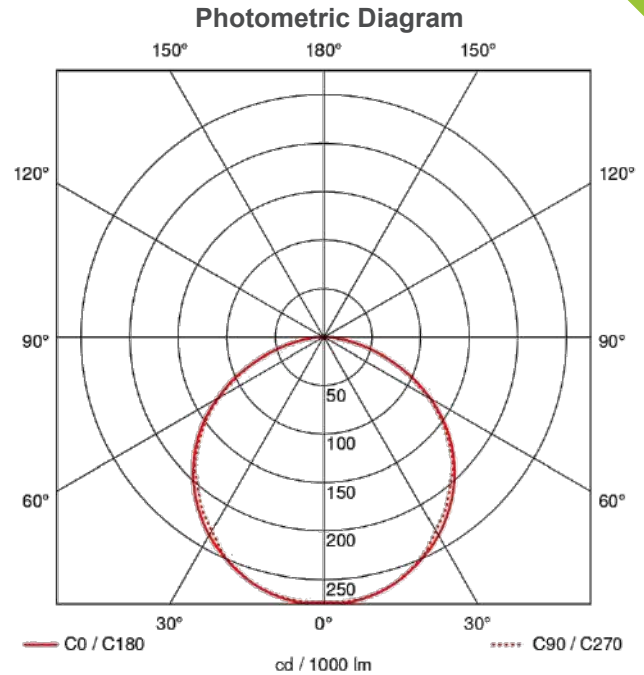
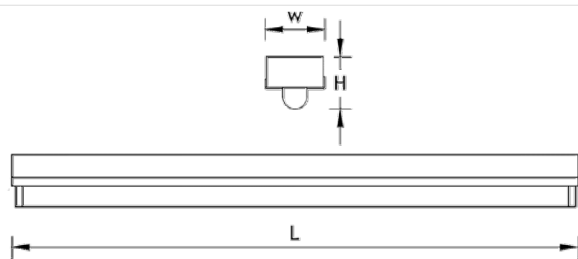
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Semi-transparent PMMA diffuser
- Polycarbonate end-caps
- DALI/DSI and dimmable options available
- Emergency options available
- High output version

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
BATTEN-43W-LED-HO	7986	47.8W	0.98	325mA	1180mm	44mm	73mm	1.5kg
BATTEN-54W-LED-HO	9838	59.5W	0.98	400mA	1180mm	44mm	73mm	1.5kg





Luminaire Efficiency: 80.22%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Cove Lighting
- Storage Rooms
- Retail Lighting
- Passage Lighting

Benefits

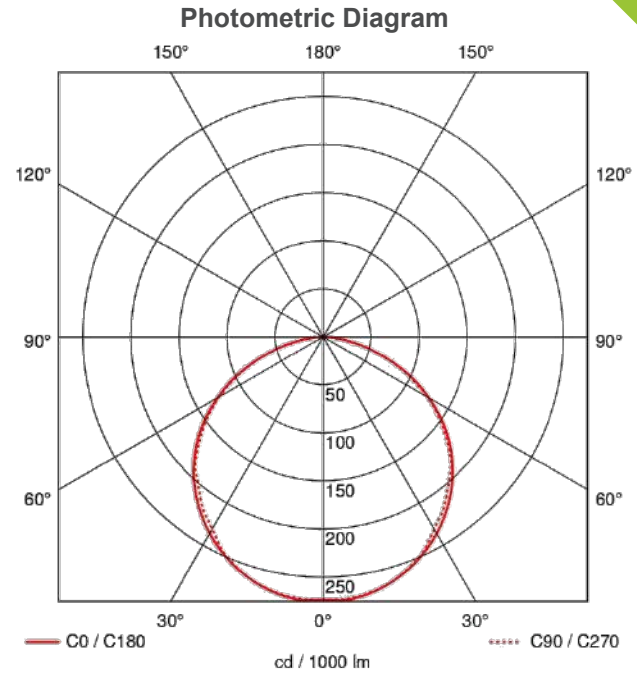
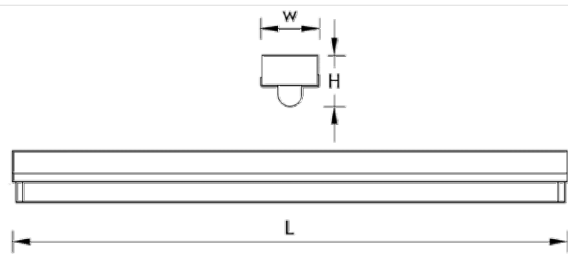
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Semi-transparent PMMA diffuser
- Polycarbonate end-caps
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency version

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
LP1-17W-LED-HE	3433	19.1W	0.98	200mA	1180mm	80mm	73mm	2kg
LP1-24W-LED-HE	4561	26.7W	0.98	275mA	1180mm	80mm	73mm	2kg
LP1-31W-LED-HE	5717	34.5W	0.98	350mA	1180mm	80mm	73mm	2kg
LP1-36W-LED-HE	6559	39.7W	0.98	400mA	1180mm	80mm	73mm	2kg





Luminaire Efficiency: 80.22%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 100 000hrs |
| • LED Life | 72 000hrs (L80 F10, TP 65°C) |

Application

- | | |
|-------------------|--------------------|
| • Class Rooms | • Storage Rooms |
| • Retail Lighting | • Passage Lighting |

Benefits

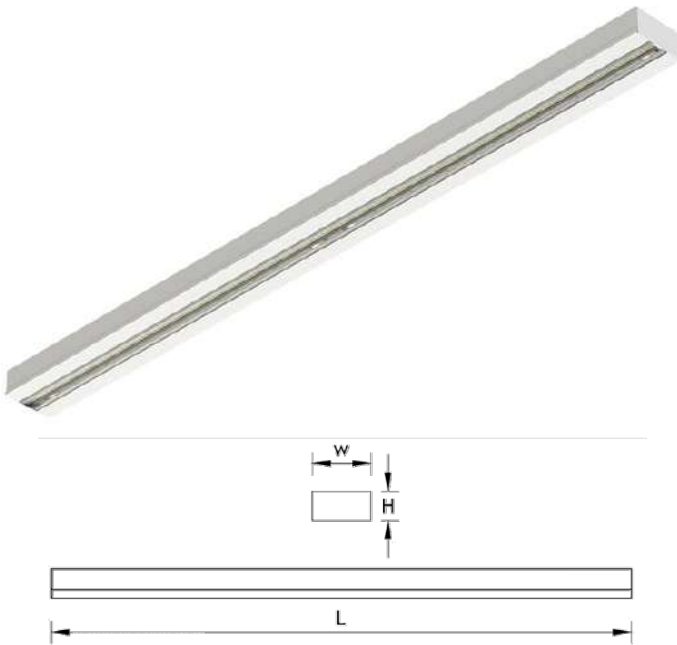
- 5 Year warranty
- Built-in surge Protection

Product Features and Accessories

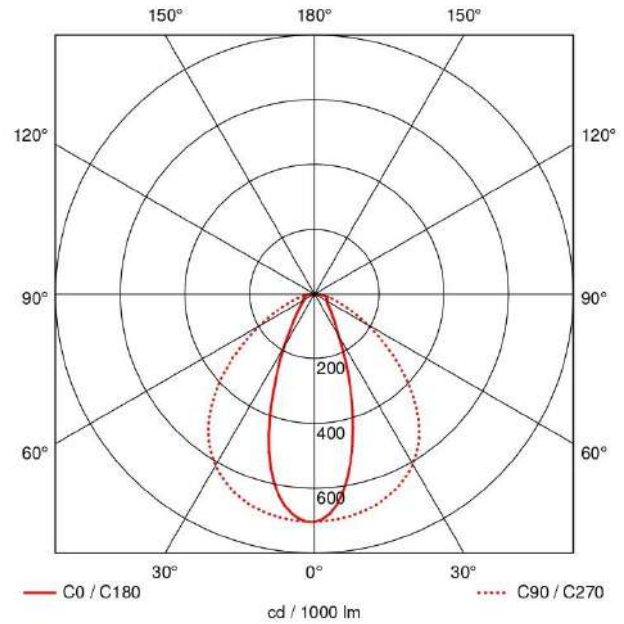
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Semi-transparent PMMA diffuser
- Polycarbonate end-caps
- DALI/DSI and dimmable options available
- Emergency options available
- High output version

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
LP1-43W-LED-HO	7986	47.8W	0.98	325mA	1180mm	80mm	73mm	2kg
LP1-54W-LED-HO	9838	59.5W	0.98	400mA	1180mm	80mm	73mm	2kg





Photometric Diagram



Luminaire Efficiency: 95.9%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Supermarkets
- Fashion Stores
- Food Stores
- Furniture Stores

Benefits

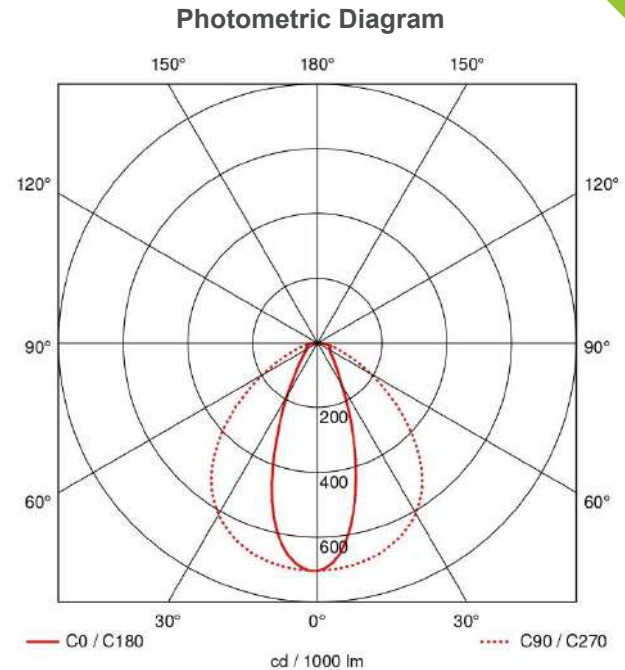
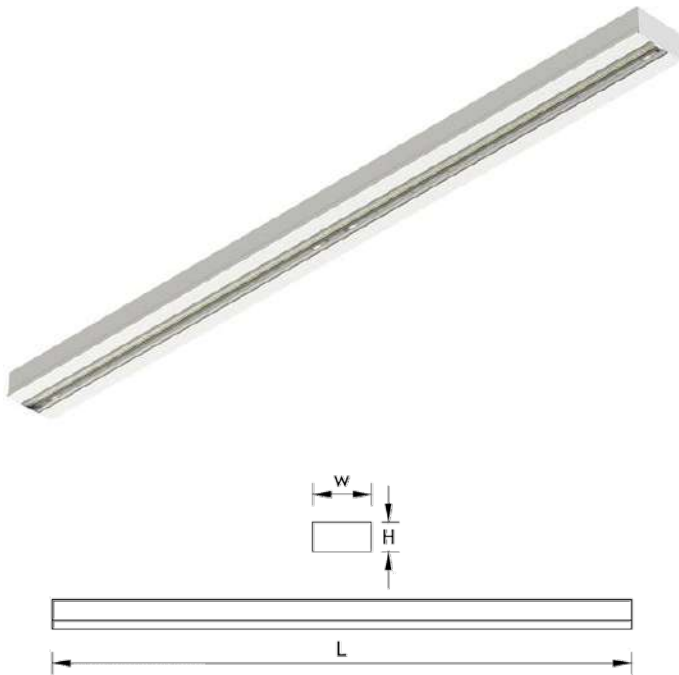
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Semi-transparent PMMA lens
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency version
- Direct replacement for 1x54W or 1x85W

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
BATTEN-BS-HE-24W-LED	4561	26.7W	0.98	275mA	1180mm	80mm	40mm	1.5kg
BATTEN-BS-HE-36W-LED	6559	39.7W	0.98	400mA	1180mm	80mm	40mm	1.5kg





Luminaire Efficiency: 92.1%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Retail Gondola Lighting
- Libraries
- Low Racking
- Parts Stores

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

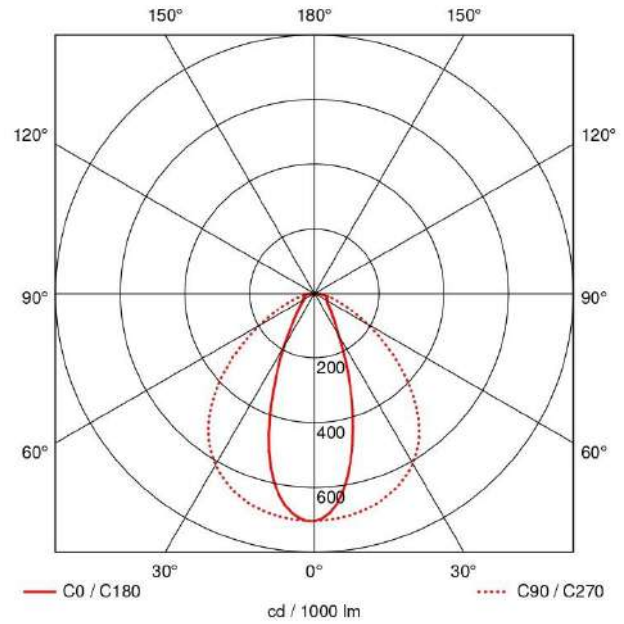
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Semi-transparent PMMA lens
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency version
- Direct replacement for 1x54W or 1x85W

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
BATTEN-BS-HO-43W-LED	7986	47.8W	0.98	275mA	1180mm	80mm	40mm	1.5kg
BATTEN-BS-HO-54W-LED	9838	59.5W	0.98	400mA	1180mm	80mm	40mm	1.5kg





Photometric Diagram



Luminaire Efficiency: 95.9%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Supermarkets
- Fashion Stores
- Food Stores
- Furniture Stores

Benefits

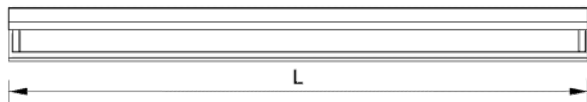
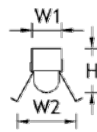
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

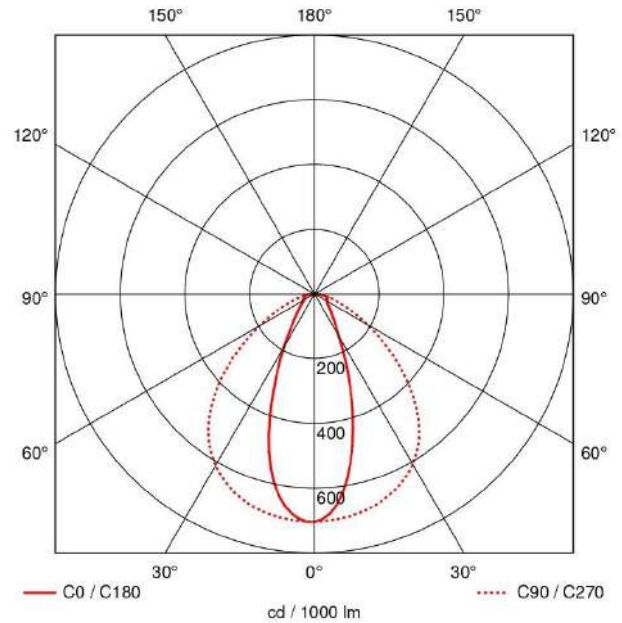
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Semi-transparent PMMA lens
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency version
- Direct replacement for 1x54W or 1x85W

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions				Weight
					L	W1	W2	H	
BATTEN-BW-HE-24W-LED	4561	26.7W	0.98	275mA	1180mm	40mm	80mm	60mm	1.5kg
BATTEN-BW-HE-36W-LED	6559	39.7W	0.98	400mA	1180mm	40mm	80mm	60mm	1.5kg





Photometric Diagram



Luminaire Efficiency: 92.1%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 100 000hrs |
| • LED Life | 72 000hrs (L80 F10, TP 65°C) |

Application

- | | |
|---------------------------|----------------|
| • Retail Gondola Lighting | • Libraries |
| • Low Racking | • Parts Stores |

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Semi-transparent PMMA lens
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency version
- Direct replacement for 1x54W or 1x85W

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions				Weight
					L	W1	W2	H	
BATTEN-BW-HO-43W-LED	7986	47.8W	0.98	275mA	1180mm	40mm	80mm	60mm	1.5kg
BATTEN-BW-HO-54W-LED	9838	59.5W	0.98	400mA	1180mm	40mm	80mm	60mm	1.5kg



CEILING AND WALL LUMINAIRES



LEJ



B10
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LEJ



RIMINI
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MILANO
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ROMA
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ROMA-L
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PALERMO
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QUATRO
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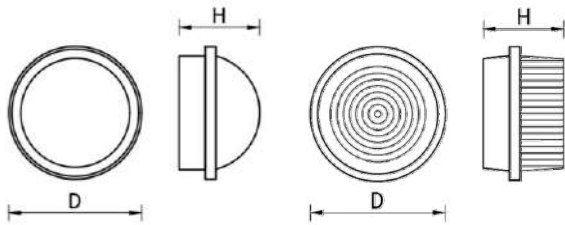


GENOA
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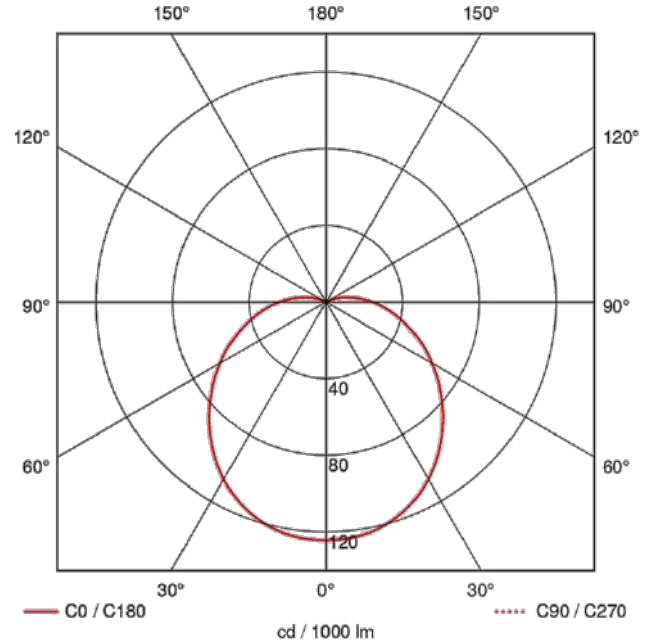


DOME

FLAT



Photometric Diagram



Luminaire Efficiency: 40.66%

Life/ Maintenance

- LED Life 50 000hrs (L70 B10, TP 60°C)

Application

- Building Perimeter
- Industrial Lighting
- Stairwells
- Corridors

Benefits

- 5 Year warranty

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Vossloh Schwabe main voltage (220-240V) LED module
- Ambient temperature: -25...+45°C
- Surface mounted on ceilings or walls or can even be semi-recessed
- Decorative skirt ordered separately
- A silicone gasket seals out moisture, dust and insects
- High pressure die cast aluminium body with block polyurethane powder paint
- Architectural colours available
- High impact resistant polycarbonate diffuser
- Clear flat or opal dome diffusers available
- Vandal proof version available
- Emergency options available

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
B10-DOME-10W-LED	1250	10W	0.97	350mA	230mm	170mm	1.1kg
B10-FLAT-10W-LED	1250	10W	0.97	350mA	230mm	170mm	1.1kg

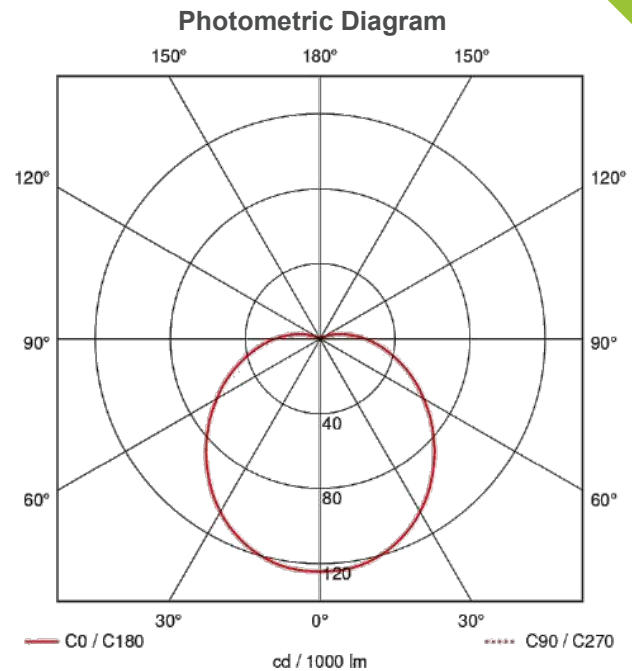
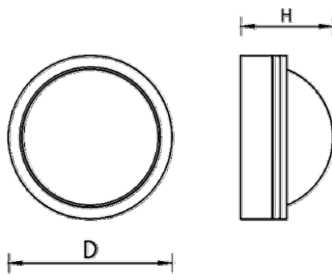




DOME

EYELID

GRID



Luminaire Efficiency: 46.3%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L80 F10, TP 45°C) |

Application

- | | |
|----------------------|------------------|
| • Residential | • Architectural |
| • Building Perimeter | • Shopping Malls |

Benefits

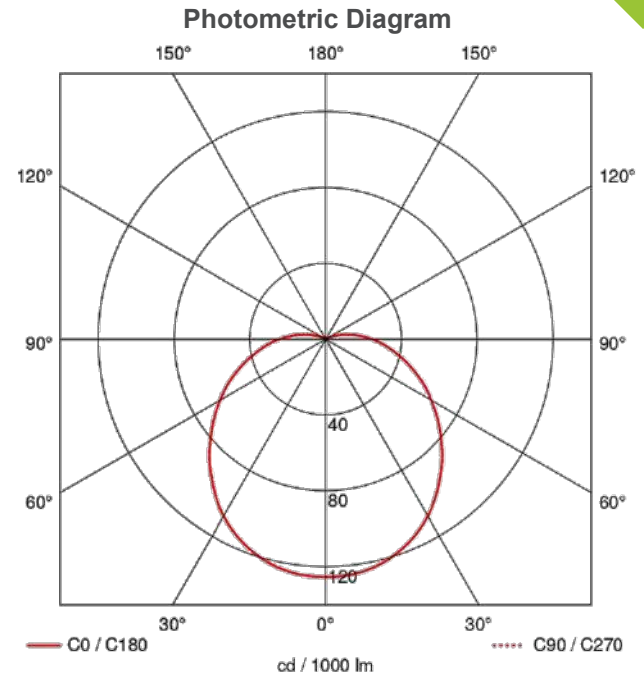
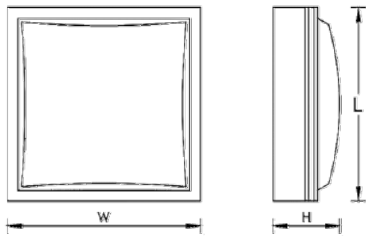
- **5 Year warranty**

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Vossloh Schwabe main voltage (220-240V) LED module
- Ambient temperature: -25...+45°C
- LM6 marine grade aluminium body and accessories
- Chemically treated and epoxy powder coated
- Architectural colours available
- Opal polycarbonate diffuser
- 316 stainless steel screws with heli-coils
- Emergency options available

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
RIMINI-DOME-21W-LED	2875	23.4W	0.93	600mA	273mm	125mm	1.9kg
RIMINI-EYELID-21W-LED	2875	23.4W	0.93	600mA	273mm	125mm	1.9kg
RIMINI-GRID-21W-LED	2875	23.4W	0.93	600mA	273mm	125mm	1.9kg





Luminaire Efficiency: 46.1%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L80 F10, TP 45°C) |

Application

- | | |
|----------------------|--------------------------|
| • Residential Areas | • Architectural Lighting |
| • Building Perimeter | • Shopping Malls |

Benefits

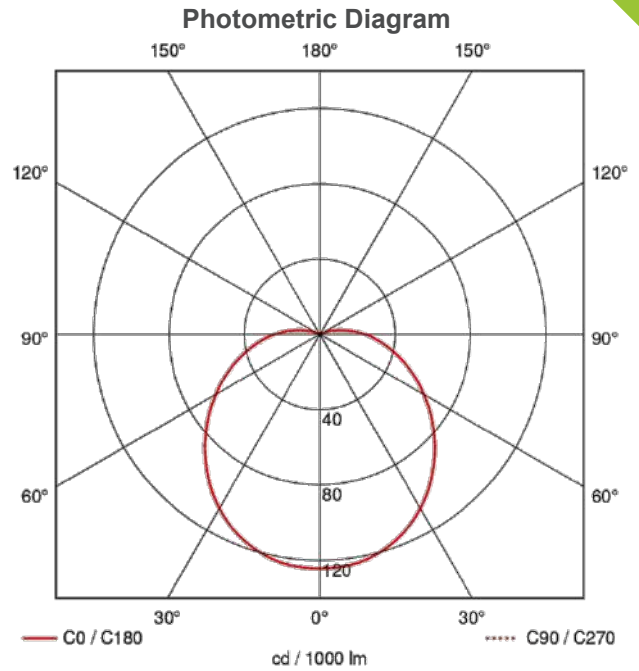
- 5 Year warranty

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Vossloh Schwabe main voltage (220-240V) LED module
- Ambient temperature: -25...+45°C
- LM6 marine grade aluminium
- Chemically treated and epoxy powder coated
- Architectural colours available
- Opal polycarbonate diffuser
- 316 stainless steel screws with heli-coils
- Emergency options available

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
MILANO-21W-LED	2875	23.4W	0.93	400mA	270mm	270mm	93mm	2.5kg





Luminaire Efficiency: 46.3%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L80 F10, TP 45°C)

Application

- Residential Areas
- Building Perimeter
- Architectural
- Shopping Malls

Benefits

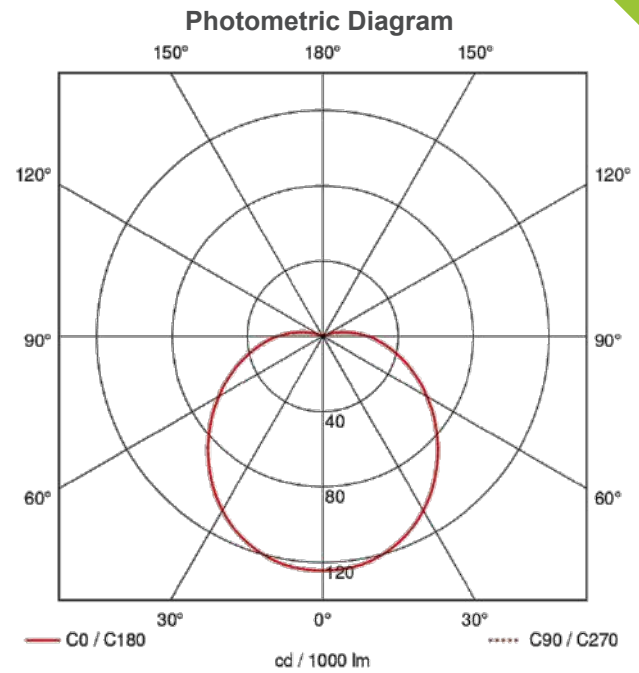
- 5 Year warranty

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Vossloh Schwabe main voltage (220-240V) LED module
- Ambient temperature: -25...+45°C
- LM6 marine grade aluminium
- Architectural colours available
- Opal polycarbonate diffuser
- 316 stainless steel screws with heli-coils
- Chemically treated and epoxy powder coated
- Emergency options available

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
ROMA-21W-LED	2875	23.4W	0.93	600mA	273mm	87mm	1.2kg





Luminaire Efficiency: 46.3%

Life/ Maintenance

- LED Driver Average Rated Life 50 000hrs
- LED Life 50 000hrs (L80 F10, TP 45°C)

Application

- Residential Areas
- Building Perimeter
- Architectural
- Shopping Malls

Benefits

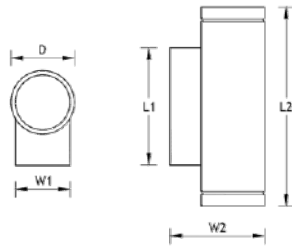
- 5 Year warranty

Product Features and Accessories

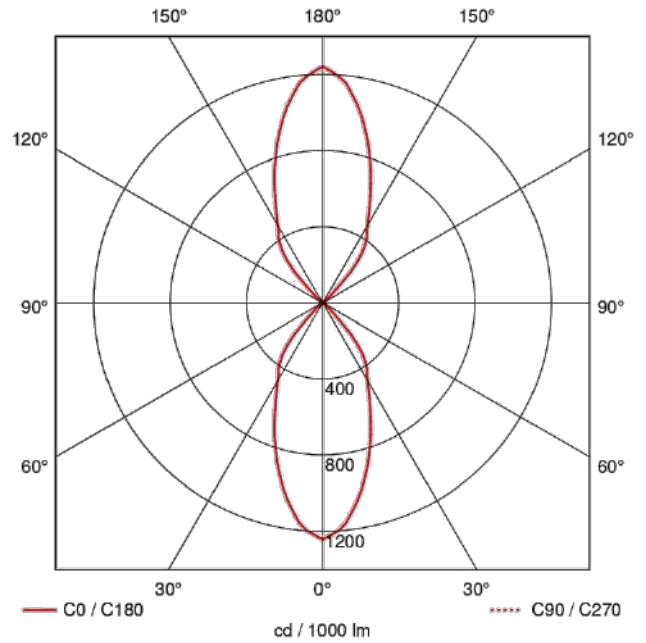
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Vossloh Schwabe main voltage (220-240V) LED module
- Ambient temperature: -25...+45°C
- LM6 marine grade aluminium
- Architectural colours available
- Opal polycarbonate diffuser
- 316 stainless steel screws with heli-coils
- Chemically treated and epoxy powder coated
- Emergency options available

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
ROMA-L-28W-LED	3619	29.6W	0.93	800mA	334mm	120mm	1.5kg
ROMA-L-EYELID-28W-LED	3619	29.6W	0.93	800mA	334mm	125mm	1.5kg





Photometric Diagram



Luminaire Efficiency: 82.5%

Life/ Maintenance

- LED Life 25 000hrs (L80 F10, TP 45°C)

Application

- Residential Areas
- Building Perimeter
- Architectural
- Shopping Malls

Benefits

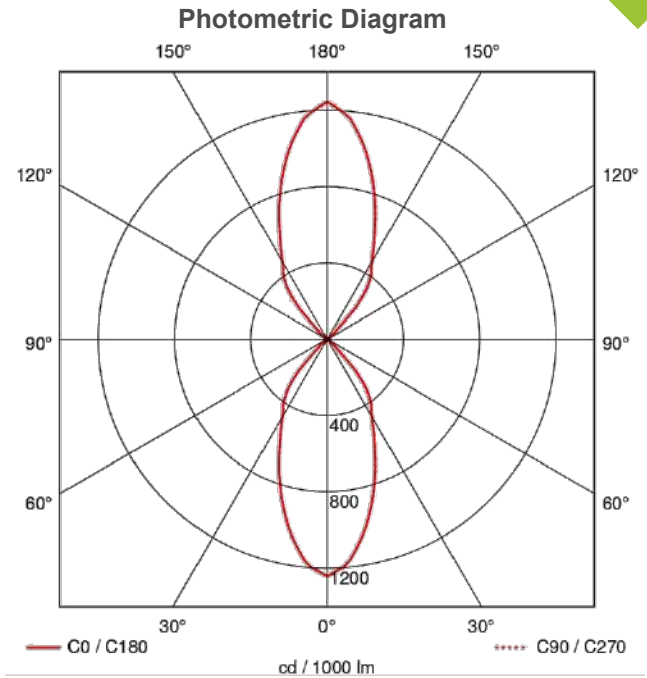
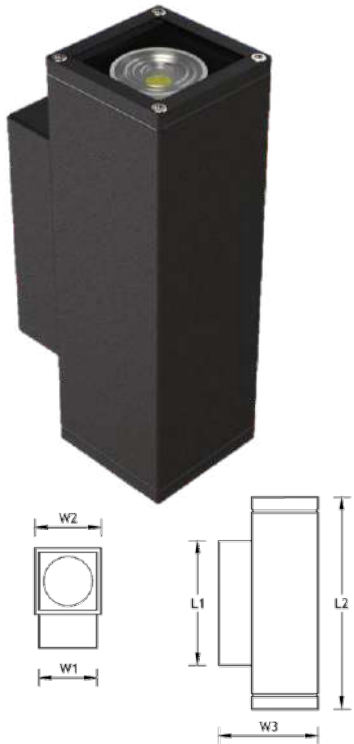
- 3 Year warranty

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 3000K
- Small colour tolerance – MacAdam 5
- Philips LED module, Tridonic driver
- LM6 marine grade aluminium
- Chemically treated and epoxy powder coated
- Architectural colours available
- 316 stainless steel screws with heli-coils
- Suitable for GU10 LED lamps
- Available in LED module with interchangeable optics: 12°, 24°, 36°
- Available in up/down or down only
- Emergency options available

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions					Weight
				L1	L2	D	W1	W2	
PALERMO-GU10-7.5W-LED	650	8W	0.98	150mm	255mm	100mm	80mm	120mm	1.9kg





Luminaire Efficiency: 82.5%

Life/ Maintenance

- LED Life: 25 000hrs (L80 F10, TP 45°C)

Application

- Residential Areas
- Architectural
- Building Perimeter
- Shopping Malls

Benefits

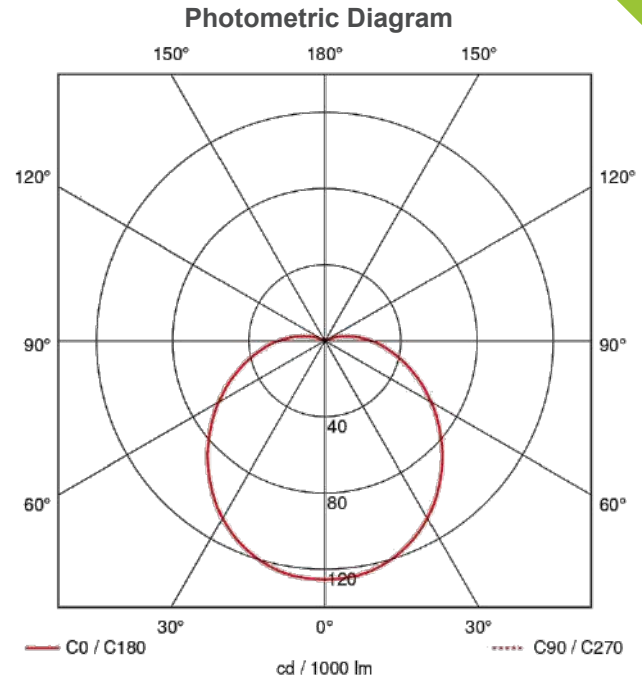
- 3 Year warranty

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 3000K
- Small colour tolerance – MacAdam 5
- Philips LED module, Tridonic driver
- LM6 marine grade aluminium
- Chemically treated and epoxy powder coated
- Architectural colours available
- 316 stainless steel screws with heli-coils
- Suitable for GU10 LED lamps
- Available in LED module with interchangeable optics: 12°, 24°, 36°
- Available in up/down or down only
- Emergency options available

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions					Weight
				L1	L2	W1	W2	W3	
QUATRO-GU10-7.5W-LED	650	8W	0.98	150mm	255mm	80mm	100mm	120mm	1.9kg





Luminaire Efficiency: 46.3%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L80 F10, TP 45°C)

Application

- Residential Areas
- Architectural Lighting
- Building Perimeter
- Shopping Malls

Benefits

- 5 Year warranty

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Vossloh Schwabe main voltage (220-240V) LED module
- Ambient temperature: -25...+45°C
- LM6 marine grade aluminium
- Chemically treated and epoxy powder coated
- Architectural colours available
- Opal polycarbonate diffuser
- 316 stainless steel screws with heli-coils
- Emergency options available

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	D	H	
GENOA-21W-LED	2875	23.4W	0.93	275mA	350mm	350mm	87mm	1.9kg



EMERGENCY LIGHTING



LED



E10 EMG
Page 67

LED



E11 EMG
Page 68

LED



E12 EMG-NM
Page 69

LED



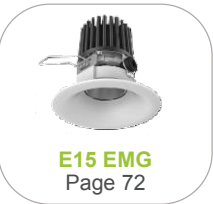
E13 EMG
Page 70

LED



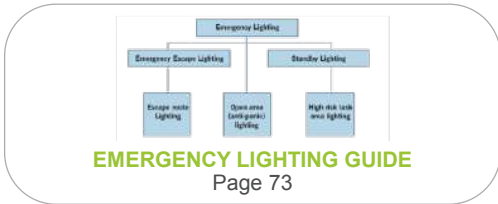
E14 EMG
Page 71

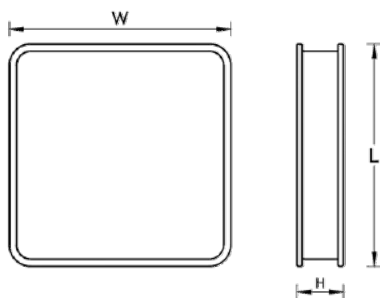
LED



E15 EMG
Page 72

LED





(Sold Separately)

Life/ Maintenance

- Average Rated Life 30 000hrs

Application

- Offices • Lecture Halls
- Hospitals • Retail

Benefits

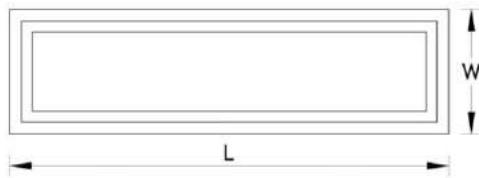
- 2 Year warranty**
- Built-in surge protection

Product Features and Accessories

- Fibreglass frame
- Toughened glass lens
- Galvanized hanging bolts (ceiling mounted version)
- Electronic control gear
- Wall mounted (single sided) or ceiling mounted (single or double sided) versions available
- Maintained or non-maintained versions available
- Test button provided
- Comply to all regulations
- SABS Certified – SANS 1464-22
- 1, 2 or 3 Hours emergency duration
- Lithium-ion battery type
- Green on white or white on green available
- Choice of legends

Specification	Lumen @ 25°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
E10-EMG-14W-LED	2584	13.5W	0.9	2.4mA	310mm	310mm	65mm	3.5kg





(Sold Separately)

Life/ Maintenance

- Average Rated Life | 50 00hrs

Application

- All exit doors according to legislation

Benefits

- 2 Year warranty**
- Built-in surge protection

Product Features and Accessories

- Rolled mild steel body with a white epoxy powder coated finish
- Test button provided
- Comply to all regulations
- Wall mounted (single sided)
- Maintained or non-maintained versions available
- SABS Certified – SANS 1464-22
- 3 Hours emergency duration
- Lithium-ion battery type
- Maximum ambient temperature +70°C

Specification	Lumen @ 25°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
E11-EMG-2W-LED	180	2W	0.9	300mA	375mm	147mm	25mm	2.3kg





(Sold Separately)

Life/ Maintenance

- Average Rated Life 30 000hrs

Application

- Cold Rooms • Outdoor Areas
- Hospitals

Benefits

- 1 Year warranty

Product Features and Accessories

- Polycarbonate body
- Frosted diffuser
- Non-maintained emergency luminaire
- 3 hours of emergency duration and 100% light output in emergency mode
- Pictogram packs sold separately (1 x running man left, 1 x running man right, 1 x running man up, 1 x running man down)

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions			Weight
				L	W	H	
E12-EMG-NM-4W-LED	160	4W	0.9	345mm	118mm	78mm	0.8kg





(Sold Separately)

Life/ Maintenance

- Average Rated Life: 30 000hrs

Application

- Cold Rooms
- Hospitals
- Outdoor Areas
- Workshops

Benefits

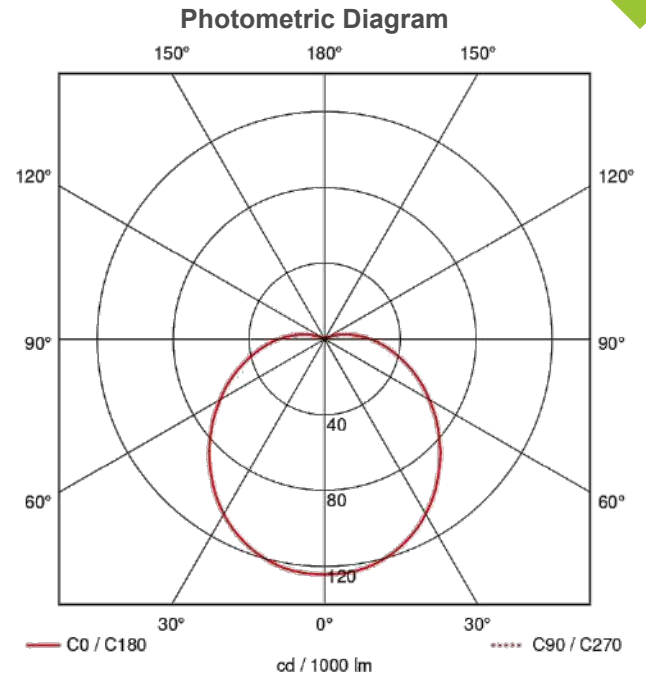
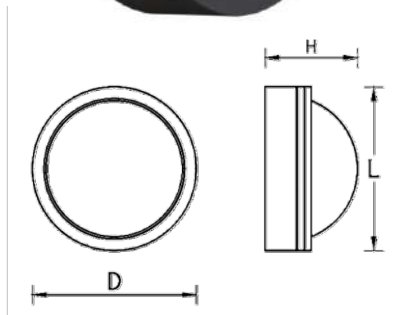
- 1 Year warranty

Product Features and Accessories

- Polycarbonate body
- Frosted diffuser
- Maintained emergency luminaire
- 3 hours of emergency duration and 100% light output in emergency mode
- Pictogram packs sold separately (1 x running man left, 1 x running man right, 1 x running man up, 1 x running man down)

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
E13-EMG-4W-LED	160	4W	0.9	0.02A	345mm	118mm	78mm	0.8kg





Luminaire Efficiency: 46.3%

Life/ Maintenance

- LED Life 50 000hrs (L80 F10, TP 45°C)

Application

- Residential Lighting
- Architectural Lighting
- Perimeter Lighting
- Shopping Malls

Benefits

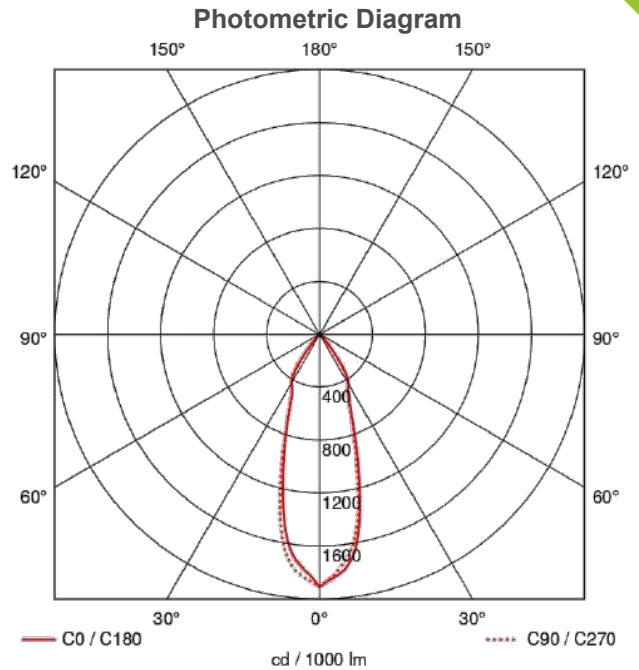
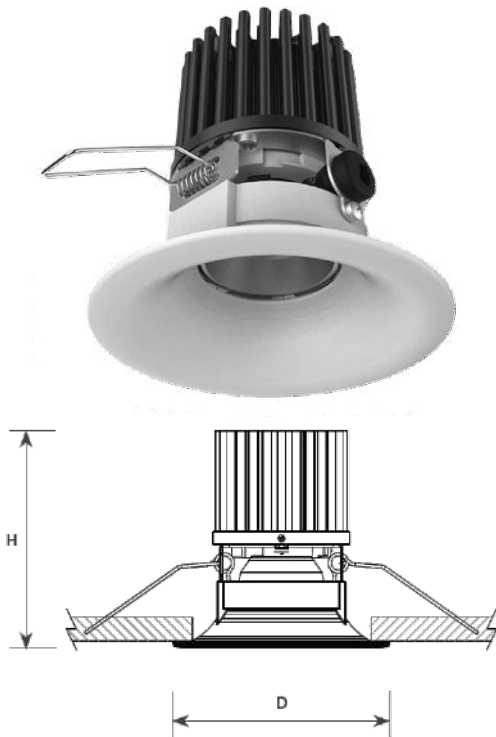
- 5 Year warranty

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K on request)
- Vossloh Schwabe main voltage (220-240V) LED module
- Ambient temperature: -25...+45°C
- LM6 marine grade aluminium
- Opal polycarbonate diffuser
- Maintained or non-maintained versions available
- 316 stainless steel screws with heli-coils
- Chemically treated and epoxy powder coated
- 1 Hour emergency duration
- Lithium-ion battery type

Specification	Lumen @ 25°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
E14-EMG-4W-LED	670	5.1W	0.93	0.02A	273mm	200mm	1.9kg





Luminaire Efficiency: 90.7%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 55 000hrs (L80 F10, TP 45°C) |

Application

- | | |
|--------------|-------------------|
| • Hotels | • Residential |
| • Apartments | • Treatment Rooms |

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI > 90 on request)
- Colour temperature 4000K and 3000K available
- Direct replacements for 50W to 75W low voltage halogen fixtures
- Available in wide and narrow beam (34° and 18°)
- Fully dimmable version on request
- Tridonic COB and driver
- Non Conductive/ corrosive bezel
- Fits into existing cut out of 83mm
- 1 Hour emergency duration
- Lithium-ion battery type

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					Cut Out	D	H	
E15-EMG-7W-LED-840	1080	7.8W	0.98	180mA	80mm	96mm	100mm	0.2kg
E15-EMG-11W-LED-840	1740	12.6W	0.98	300mA	80mm	96mm	100mm	0.2kg



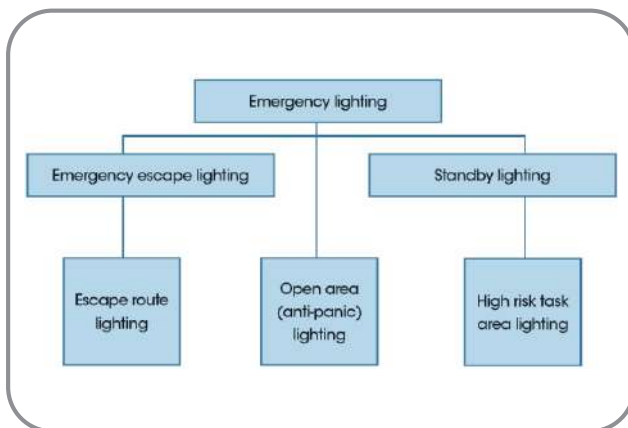
INTRODUCTION

Emergency lighting is intended to provide sufficient light to enable people to see their way out safely in case of an emergency. Emergency lighting installations must always comply with the appropriate standards. In terms of the Occupational Health and Safety Act (Act 85 of 1993) as amended, it is now mandatory to provide emergency lighting. In addition, it is compulsory that the emergency lighting system installed satisfies strict performance and operational criteria with SANS 1464-22 – Safety of Luminaires Part 22: Luminaires for Emergency Lighting. Further details and explanations can be found in SANS 10114-2 – Interior Lighting Part 2: Emergency Lighting. The installation must also be regularly maintained, tested and full records kept.

THE NEED FOR EMERGENCY LIGHTING

Emergency lighting is provided for when the main lighting supply fails. This is required to help the occupants evacuate the premises quickly and safely. The emergency lighting is only required to be bright enough for the occupants to find exit doors and to avoid obstacles.

Specific forms of emergency lighting



Emergency escape lighting – that part of the emergency lighting provided to enable safe exit from a building in the event of mains failure.

Standby lighting – that part of the emergency lighting that enables normal activities to continue in the event of mains failure.

Escape route lighting – that part of the emergency lighting that enables the safe exit from a building by providing adequate light and direction on escape routes and ensures that the fire fighting and safety equipment can be easily identified and used.

Open area (anti-panic) lighting – that part of emergency lighting that is provided in an open area to avoid panic and to enable the safe movement of occupants to reach an escape route.

High-risk task area lighting – that part of emergency lighting that provides light for the safety of the occupants involved in a potentially dangerous process or situation and enables proper shutdown procedures to ensure the safety of the operator and other occupants of the premises.

Under emergency conditions, emergency lighting is usually powered by internal batteries or a standby generator which are automatically triggered as soon as the mains supply fails. The emergency light source will usually be a separate miniature compact fluorescent lamp if “stand alone” emergency luminaires are used. It can also be one of the normal linear fluorescent lamps in a standard luminaire operated at reduced power level when in emergency mode.

All emergency lighting requires a power source which is independent of the main power supply. In general, this will either be powered by batteries or a generator.

THERE ARE TWO MAIN SYSTEM TYPES:

Battery system

Battery systems may be one of two distinct types: self-contained and central system.

Self-contained emergency system

Each luminaire is equipped with a battery charger/ballast, indicator and changeover device (inverter). These components may be integral within the luminaire or adjacent to it. Self-contained systems are easy to install and require little or no maintenance other than routine testing to ensure correct operation. The luminaires should be connected to the local lighting circuit where there is a danger from circuit failure.

Central battery system

The central battery system is a battery room or cubicle in which the charger, batteries and changeover devices are located. In a central system it is also essential that the wiring be of a very high integrity. If it is not of a sufficiently high standard, there is a considerable risk of loss of power due to fire damage. There may also be a poor overall performance because of excessive voltage drop in the cables.

Generator system

An emergency lighting system must reach its required illumination level within 5 seconds, although some authorities will extend this to 15 seconds if the building is occupied by staff who are familiar with the surroundings.

It is essential that the generator is run at all times. During its required time or the time that the generator automatically starts and runs up to, its required output is 5 seconds or less. If neither of these conditions can be achieved, then the generator must be supplemented by a battery system capable of operating the emergency lighting for at least one hour. In this case, the generator need not start up automatically but it should take over from the battery system as soon as possible.

MODES OF OPERATION

There are two types of emergency luminaires:

Non-maintained mode

In non-maintained mode, the lamp is normally off and only operates during supply power failure. When using a non-maintained luminaire, the lamp only provides emergency escape lighting in the event of a power supply interruption. It has only one main connection that must be left on permanently. This connection is normally used to charge the batteries and to detect a power failure.

Non-maintained emergency luminaires are usually used:

- in areas where it is not possible to merge the emergency lighting gear into the existing luminaires;
- for high risk task area lighting where bright, direct lighting is required during an emergency;
- for existing lighting installations where it is not feasible to change the building wiring and the lighting is on permanently;
- for area flood lighting where the existing lamp (HID) is not suitable for use in an emergency lighting application.

Maintained mode

A maintained luminaire provides light for both normal and emergency lighting. It has two main connections: permanent life and switched life. The permanent life connection is used to charge the batteries and detect the power failure. The switched life is used to switch the luminaire on and off to provide normal lighting.

Maintained emergency luminaires are ideally suited for emergency lighting in:

- stair wells;
- general offices;
- escape route lighting;
- areas where it is preferable to merge emergency lighting into existing luminaires;
- new installations where the additional wiring requirements can be readily accommodated.

Batteries

There are two types of batteries used for emergency lighting luminaires:

Nickel cadmium batteries

Nickel cadmium (NiCad) batteries are the most commonly used for emergency lighting. These batteries are rechargeable and the batteries are normally connected in series into a battery pack – 4 batteries will give a 4.8V output for an hour duration and 5 batteries will give 6V output for a two to three hour duration. Nickel cadmium batteries have a long life, up to 10 years. They can be kept on the shelf for one or two years before being used without any detrimental effect.

Lead-acid batteries

A sealed lead-acid battery is cheaper but requires more maintenance and its rated life is about 5 years. It is used for halogen lights and other 12V DC devices. When this battery is stored, it must be recharged every three months. It is seldom used in fluorescent emergency luminaires.

SERVICING / MAINTENANCE

To protect the integrity of an emergency lighting system, recommended maintenance and routine servicing is essential. This routine should be detailed and checks recorded in a logbook which is available for examination by any duly authorized personnel. These personnel must have at their disposal a general building or floor plan and electrical system assembly diagram of the safety lighting system.

Monthly – test for a short period not exceeding one quarter of the rated duration of operation of the luminaire.

Annually – test each luminaire to its full rated duration of operation.

Note: these tests should be carried out more regularly if there are many power failures of short duration in a short space of time.

In terms of the Occupational Health and Safety Act 1993 (Act 85 Of 1993) as amended, periodic inspection and test reports should be supplied to the person responsible for the premises.

DESIGN CONSIDERATIONS

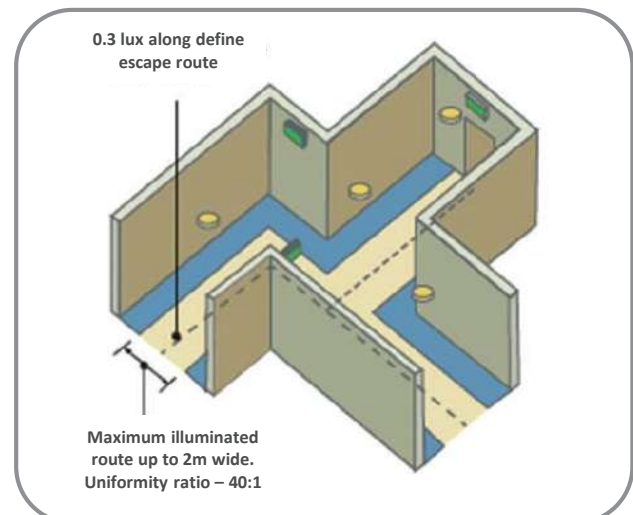
Design objective

It is an increasing requirement that commercial, industrial and public buildings are provided with some form of emergency lighting.

Requirements vary for different types of buildings. General guidance is given in **SANS 10114-2 – Interior Lighting Part 2: code of practices for emergency lighting:**

Clearly define the escape routes.

Provide illumination along the escape routes to allow safe movement towards and through the exits by luminaires spaced at appropriate intervals. Corridors and stairways or gangways in open areas are all classified as clearly defined escape routes.



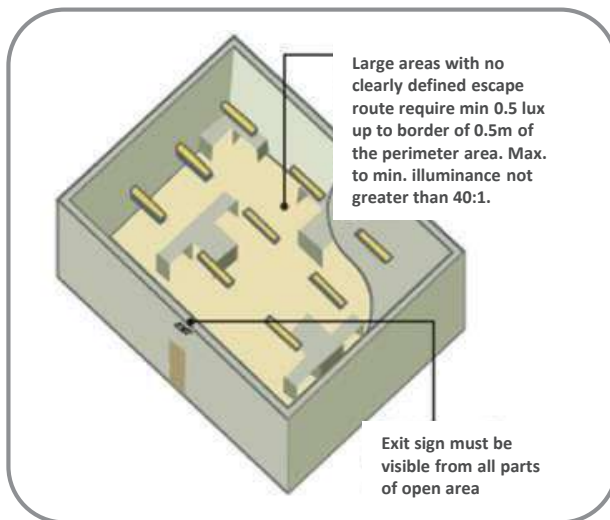
LASCON[®] EMERGENCY LIGHTING GUIDE

The minimum lighting parameters are as follows:

- Horizontal illumination at the floor on the centreline of permanently unobstructed routes should not be less than 0.2 lux. For stairways, the illumination should be measured horizontally at the edge of each tread.
- Where escape routes are greater than 2 metres, the escape route is to be treated as multiples of 2 metre wide bands.
- In retirement centres, an illumination of 0.3 lux is recommended.

OPEN AREAS ANTI-PANIC LIGHTING

For areas that are frequently reconfigured and therefore do not have within them clearly defined escape routes, for example open plan offices or conference facilities, the minimum lighting parameters are as follows:



- The horizontal illumination shall not be less than 0.5 lux at the floor level of the empty core area which excludes the border of 0.5 metre of the perimeter area.
- The ratio of the maximum to the minimum open area lighting illumination shall not be greater than 40:1.
- Exit signs should be visible from any part of the space.

High risk task lighting

High risk areas are those in which dangerous machines must be shut down prior to evacuation.

General requirements

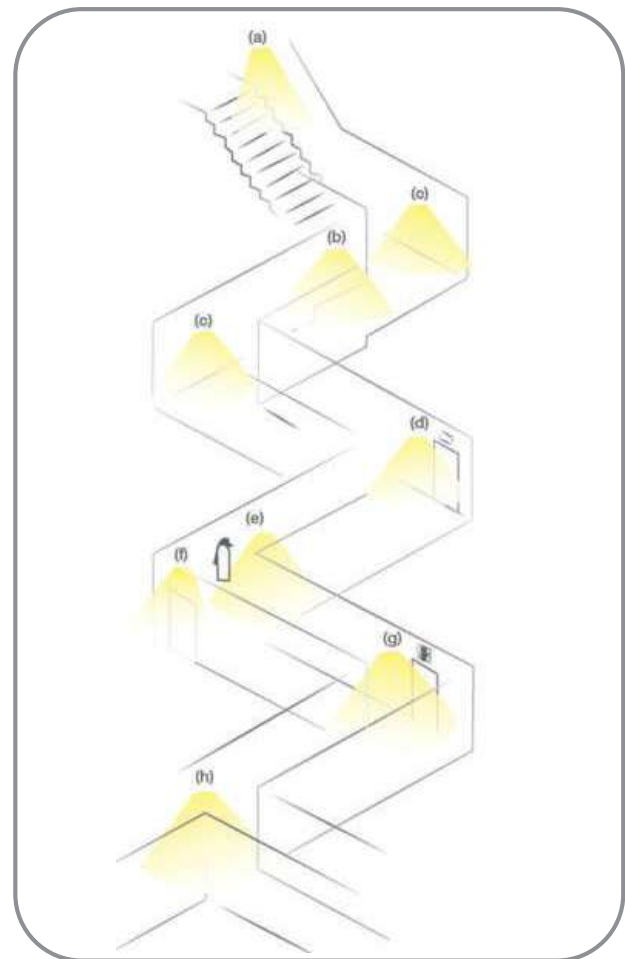
- The task must be illuminated to 10% of the normal lighting for as long as the risk exists or 20 lux, whichever is greater.
- Maximum uniformity ratio of 10:1 within 5 metres of task.
- Duration of at least 30 minutes.
- Response time of at least 0.5 seconds.

Position of emergency lighting luminaires

The most important part of the design procedure is to determine the location and position of luminaires to account for specific points of emphasis. This is to be performed regardless of whether the luminaires are placed on the emergency escape route or in an open anti-panic area. These points of emphasis should be illuminated by a luminaire and a directional sign (exit sign).

AREAS REQUIRING SPECIAL EMPHASIS LIGHTING:

- (a) All staircases – long flights of stairs may need more than one luminaire.
- (b) At or near changes in floor levels.
- (c) At or near each change of direction.
- (d) To illuminate exit doors and safety signs.
- (e) Within 2 metres of each fire call point and each item of fire equipment such as extinguishers or hose reels.
- (f) Outside and near to each final exit.
- (g) Near any First Aid points.
- (h) At each intersection of the escape route corridor.



"Near" is described as being within 2 metres measured in a horizontal direction. Exit signs are to be mounted at a height of 2 to 2.5 metres above floor level.

Additional emergency lighting

Although not part of the escape route, certain additional areas require the use of emergency lighting:

- Lift cars – although they may be part of the escape route in exceptional circumstances, they may present a problem if the public are trapped in them in the event of a mains supply failure.
- Toilet facilities exceeding 8m² floor area and all toilets for the disabled.
- Motor generator, control or plant rooms.
- Covered car parks along normal pedestrian routes.

Most of Lascon's standard fluorescent luminaires can be supplied as self-contained emergency units. All luminaires can be maintained or non-maintained for an hour duration with 20% light output.

RECESSED DOWNLIGHTS



LED



LED



LED



LED



LED



LED

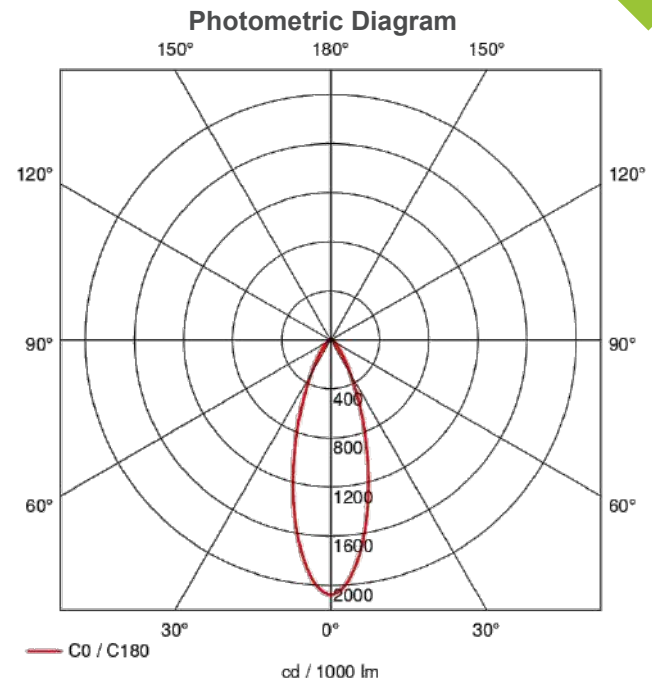
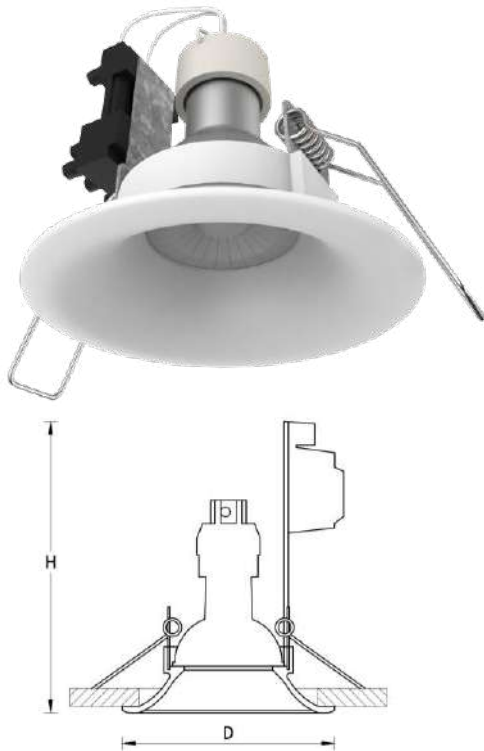


LED



LED





Luminaire Efficiency: 100%

Life/ Maintenance

- LED Life: 25 000hrs

Application

- Residential Lighting
- Hotels
- Passages

Benefits

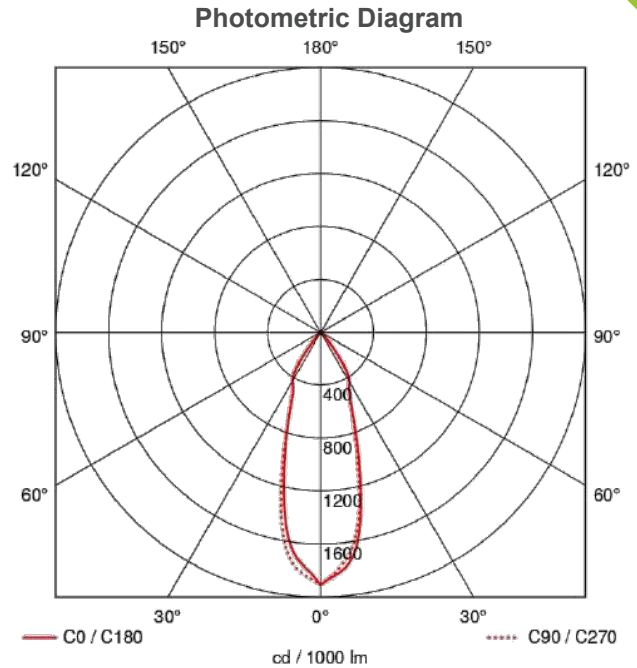
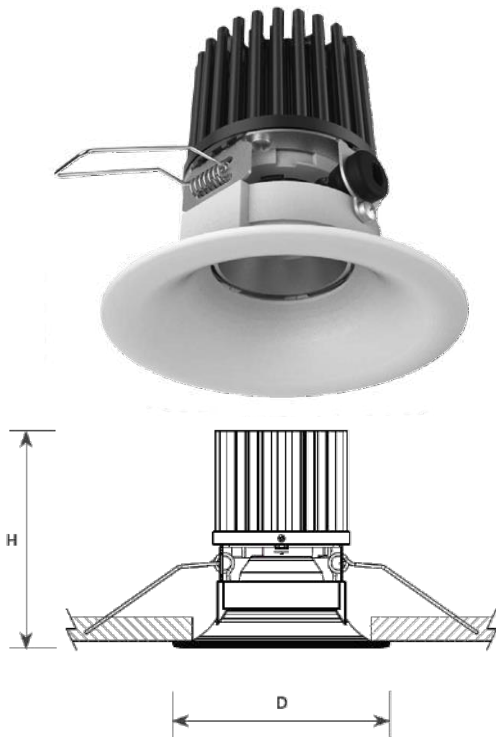
- 3 Year warranty

Product Features and Accessories

- High colour rendering index CRI > 90
- Colour temperature 3000K or 4000K
- Small colour tolerance - MacAdam 5
- 34° beam angle
- Fully dimmable
- Ideal retrofit solution for LV fixtures
- Non conductive / corrosive bezel

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions			Weight
				Cut Out	D	H	
FUT-GU10-7.5W-LED	650	8W	0.7	80mm	95mm	130mm	0.1kg





Luminaire Efficiency: 90.7%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	55 000hrs (L80 F10, TP 45°C)

Application

- Hotels
- Residential
- Apartments
- Treatment Rooms

Benefits

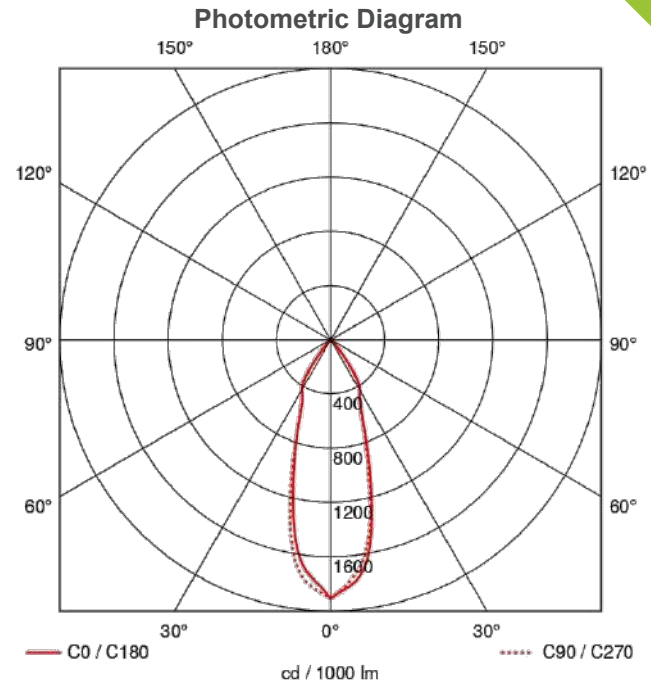
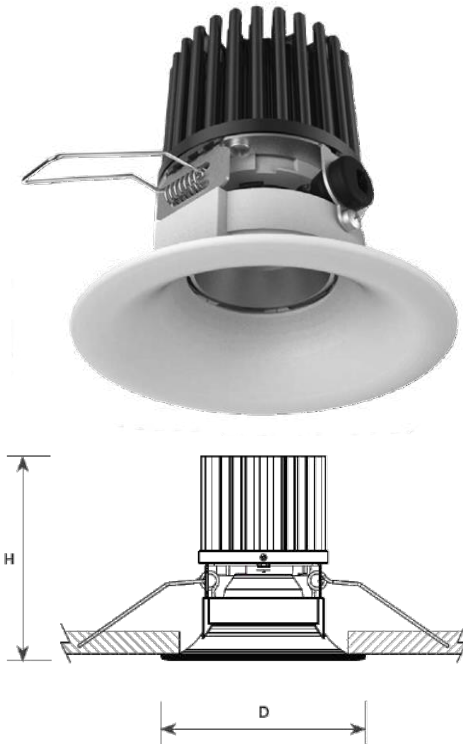
- 5 Year warranty
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI > 90 on request)
- Colour temperature 4000K and 3000K available
- Direct replacements for 50W to 75W low voltage halogen fixtures
- Available in wide and narrow beam (34° and 18°)
- Fully dimmable version on request
- Tridonic COB and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Non conductive / corrosive bezel
- Fits into existing cut out of 83mm

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					Cut Out	D	H	
FUT1-7W-LED-840	1080	7.8W	0.98	180mA	80mm	96mm	100mm	0.2kg
FUT1-11W-LED-840	1740	12.6W	0.98	300mA	80mm	96mm	100mm	0.2kg





Luminaire Efficiency: 85.3%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 55 000hrs (L80 F10, TP 45°C) |

Application

- | | |
|--------------|-------------------|
| • Hotels | • Hospitals |
| • Apartments | • Treatment Rooms |

Benefits

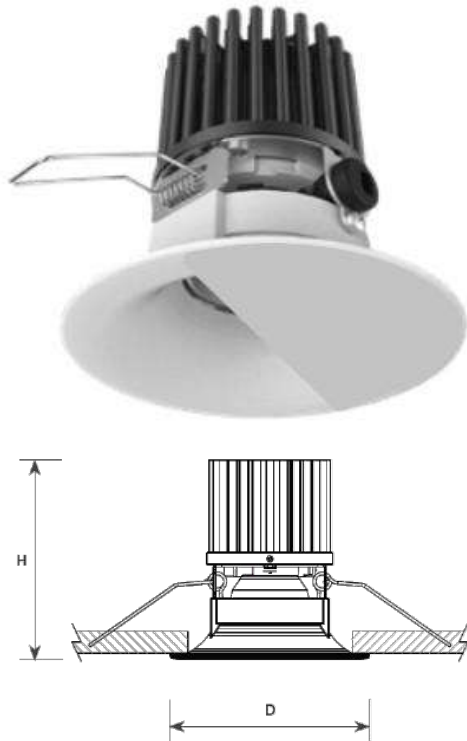
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

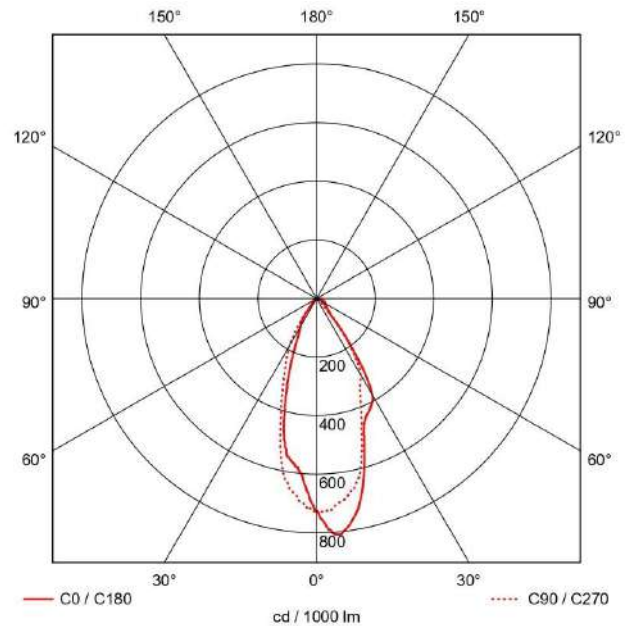
- High colour rendering index CRI > 80 (CRI > 90 on request)
- Colour temperature 4000K and 3000K available
- Direct replacements for 50W to 75W low voltage halogen fixtures
- Available in wide and narrow beam (34° and 18°)
- Fully dimmable version on request
- Tridonic COB and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Non Conductive/ corrosive bezel
- Clear Plexi glass IP shield
- Fits into existing cut out of 83mm
- IP54 rated from below

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					Cut Out	D	H	
FUT2-7W-LED-840	1080	7.8W	0.98	180mA	80mm	96mm	100mm	0.2kg
FUT2-11W-LED-840	1740	12.6W	0.98	300mA	80mm	96mm	100mm	0.2kg





Photometric Diagram



Luminaire Efficiency: 51%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	55000hrs (L80 F10, TP 45°C)

Application

- Hotels
- Hospitals
- Conference Rooms
- Treatment Rooms

Benefits

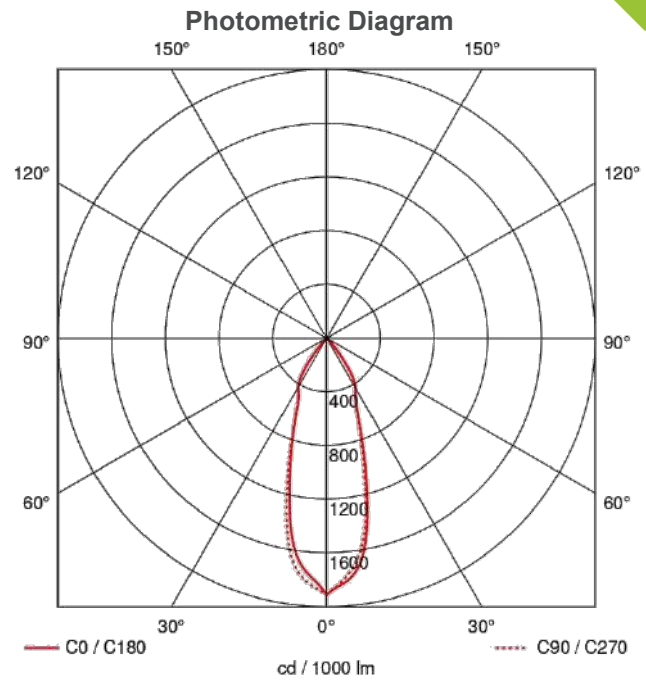
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI > 90 on request)
- Colour temperature 4000K and 3000K available
- Direct replacements for 50W to 75W low voltage halogen fixtures
- Available in wide and narrow beam (34° and 18°)
- Fully dimmable version on request
- Tridonic COB and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Non Conductive/ corrosive bezel
- Fits into existing cut out of 83mm

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					Cut Out	D	H	
FUT3-7W-LED-840	1080	7.8W	0.98	180mA	80mm	96mm	100mm	0.3kg
FUT3-11W-LED-840	1740	12.6W	0.98	300mA	80mm	96mm	100mm	0.3kg





Luminaire Efficiency: 90.7%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 55 000hrs (L80 F10, TP 45°C) |

Application

- | | |
|--------------|-------------------|
| • Hotels | • Residential |
| • Apartments | • Treatment Rooms |

Benefits

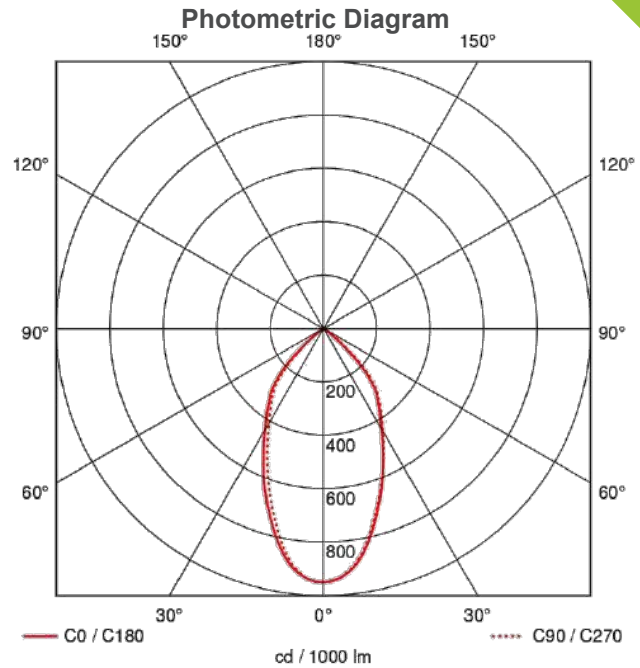
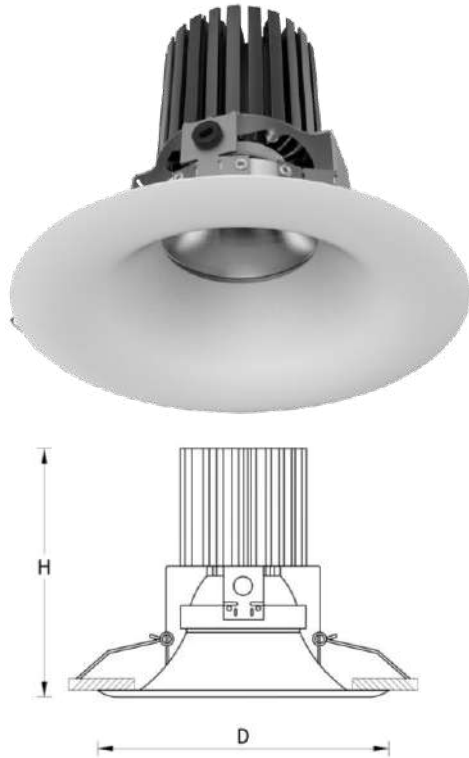
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI > 90 on request)
- Colour temperature 4000K and 3000K available
- Direct replacements for 50W to 75W low voltage halogen fixtures
- Available in wide and narrow beam (34° and 18°)
- Fully dimmable version on request
- Tridonic COB and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Non-corrosive bezel
- Fits into existing cut out of 100 to 115mm

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					Cut Out	D	H	
FUT4-7W-LED-840	1080	7.8W	0.98	180mA	100mm	130mm	100mm	0.5kg
FUT4-11W-LED-840	1740	12.6W	0.98	300mA	100mm	130mm	100mm	0.5kg





Luminaire Efficiency: 94.3%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	55 000hrs (L80 F10, TP 45°C)

Application

- Offices
- Shopping Malls
- Double Volume Areas
- Lecture Halls
- Convention Halls

Benefits

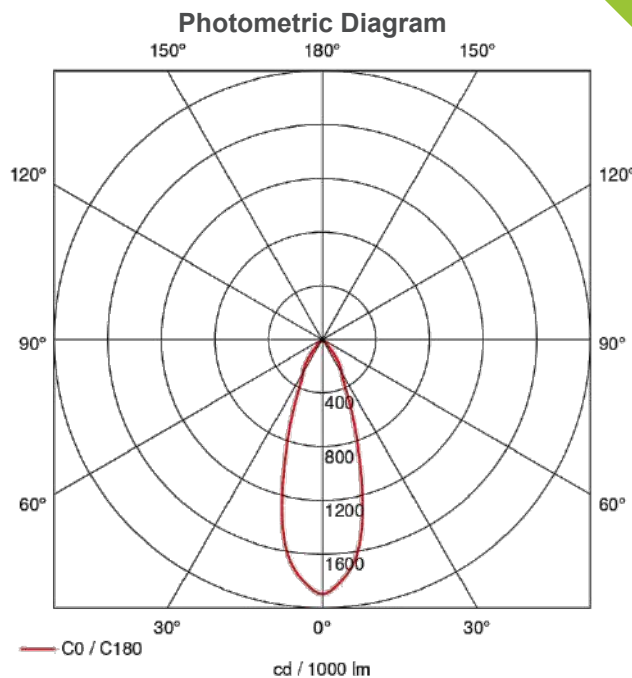
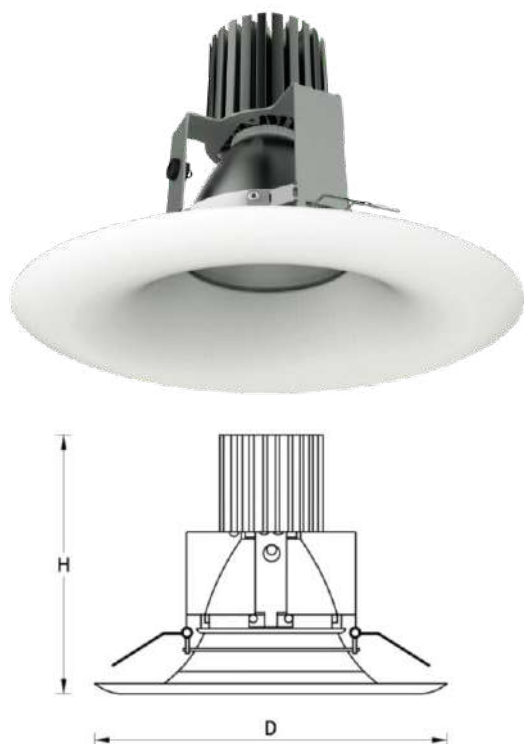
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI>90 available on request)
- Colour temperature 4000K and 3000K available
- Tridonic COB and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Direct replacements for HID Metal Halide 20W to 50W
- Direct replacements for CFL 2x18W to 2x26W
- Fits into existing cut out of 140mm to 165mm
- Available in wide and narrow beam (55° and 27°)
- Non-corrosive bezel
- Fully dimmable version on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					Cut Out	D	H	
FUT5-12W-LED-840	2110	12.8W	0.98	350mA	140-165mm	200mm	170mm	0.9kg
FUT5-17W-LED-840	2940	18.4W	0.98	500mA	140-165mm	200mm	170mm	0.9kg
FUT5-20W-LED-840	3790	22.2W	0.98	600mA	140-165mm	200mm	170mm	0.9kg
FUT5-27W-LED-840	4980	29.4W	0.98	800mA	140-165mm	200mm	170mm	0.9kg





Luminaire Efficiency: 84.7%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	55 000hrs (L80 F10, TP 45°C)

Application

- Offices
- Shopping Malls
- Double Volume Areas
- Lecture Halls
- Convention Halls

Benefits

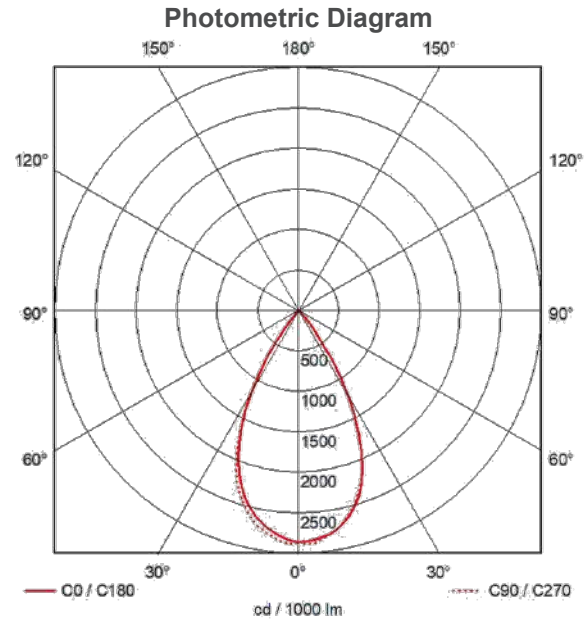
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI>90 available on request)
- Colour temperature 4000K and 3000K available
- Tridonic COB and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Direct replacements for HID Metal Halide 20W to 50W
- Direct replacements for CFL 2x18W to 2x26W
- Fits into existing cut out of 165mm to 230mm
- Available in 50° beam angle
- Non-corrosive bezel
- Fully dimmable version on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					Cut Out	D	H	
FUT6-12W-LED-840	2110	12.8W	0.98	350mA	165-230mm	300mm	208mm	1.2kg
FUT6-17W-LED-840	2940	18.4W	0.98	500mA	165-230mm	300mm	208mm	1.2kg
FUT6-20W-LED-840	3790	22.2W	0.98	600mA	165-230mm	300mm	208mm	1.2kg
FUT6-27W-LED-840	4980	29.4W	0.98	800mA	165-230mm	300mm	208mm	1.2kg





Luminaire Efficiency: 90.7%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L80 F10, TP 25°C) |

Application

- | | |
|------------------|-----------------|
| • Entrances | • Offices |
| • Shopping Malls | • Retail Spaces |
| • Shop Fronts | • Display Areas |

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High pressure die cast aluminium housing
- Fixed trim
- Colour temperature 4000K and 3000K available
- Direct replacements for 50W to 75W low voltage halogen fixtures
- Available in 15°, 30°, 45° and 60° beam angle
- Fully dimmable version on request
- Tridonic COD and remote driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Emergency back-up for 1hour and 3hours available

Specification	Lumen @ 25°C	System Power	Power Factor	Current	Dimensions			Weight
					Cut Out	D	H	
FUT7-17W-LED-840	2843	17W	0.98	250mA	155mm	165mm	125mm	0.3kg
FUT7-25W-LED-840	3750	25.8W	0.98	350mA	155mm	165mm	125mm	0.3kg



SURFACE DOWNLIGHTS



LED



TR
Page 88

LED



TS
Page 89

LED

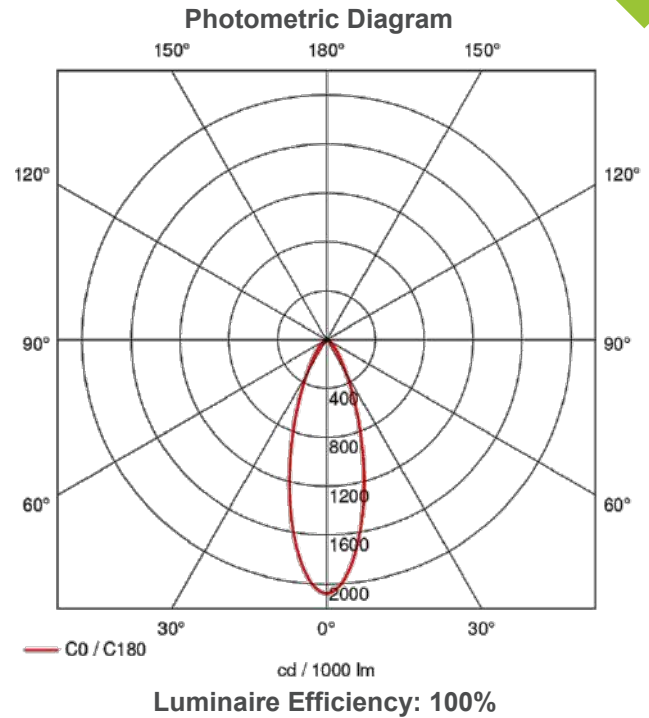
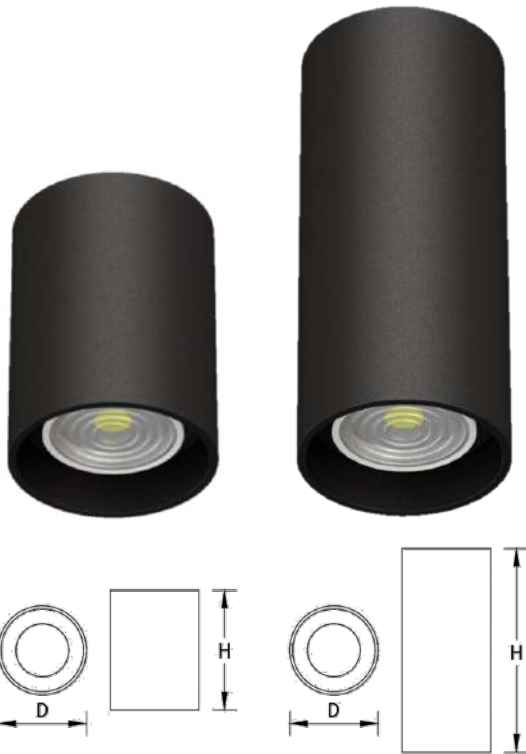


SDL
Page 90

LED



WS
Page 91



Life/ Maintenance

- LED Life 25 000hrs

Application

- Residential Lighting
- Retail
- Hotels
- Interior Architectural Lighting

Product Features and Accessories

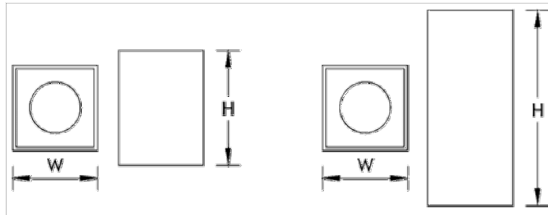
- High colour rendering index CRI > 90
- Colour temperature 4000K or 3000K
- Small colour tolerance – MacAdam 5
- Special colours on request
- Powder coated aluminium body
- 34° beam angle
- Fully dimmable

Benefits

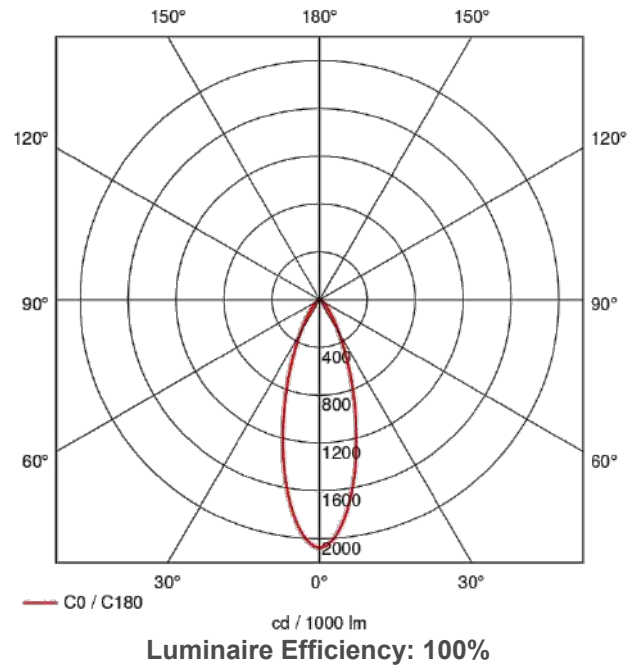
- 3 Year warranty

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions		Weight
				D	H	
TR-100-GU10-7.5W	650	8W	0.7	74mm	100mm	0.3kg
TR-200-GU10-7.5W	650	8W	0.7	74mm	200mm	0.4kg





Photometric Diagram



Life/ Maintenance

- LED Life 25 000hrs

Application

- Residential Lighting
- Retail
- Hotels
- Interior Architectural Lighting

Product Features and Accessories

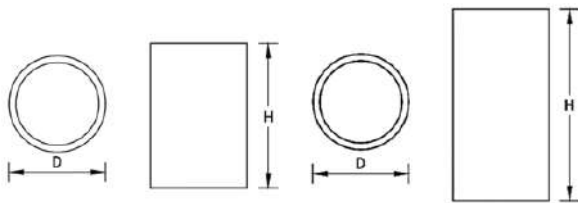
- High colour rendering index CRI > 90
- Colour temperature 4000K or 3000K
- Small colour tolerance – MacAdam 5
- Special colours on request
- Powder coated aluminium body
- 34° beam angle
- Fully dimmable

Benefits

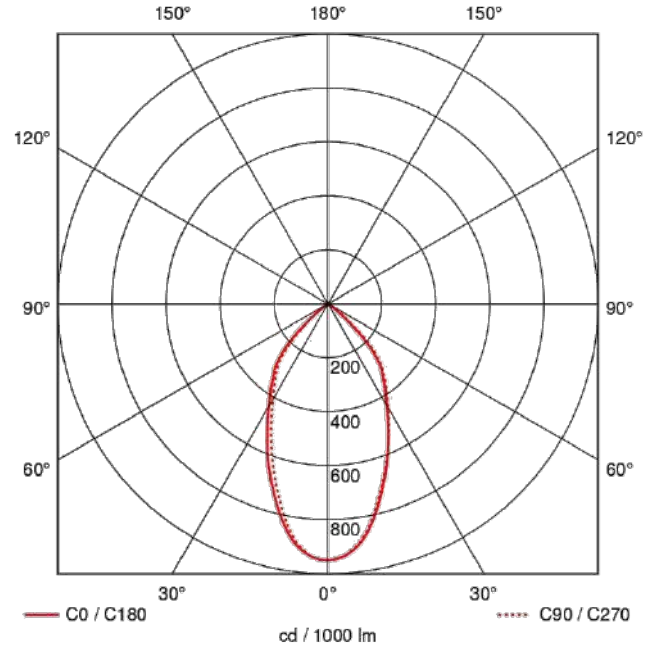
- 3 Year warranty
- Built-in surge protection

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions		Weight
				W	H	
TS-100-GU10-7.5W	650	8W	0.7	76mm	100mm	0.3kg
TS-200-GU10-7.5W	650	8W	0.7	76mm	200mm	0.4kg





Photometric Diagram



Luminaire Efficiency: 94.3%

Life/ Maintenance

- LED Driver Average Rated Life 50 000hrs
- LED Life 50 000hrs (L80 F10, TP 45°C)

Application

- Residential Lighting
- Shopping Malls
- Passage and walkways

Benefits

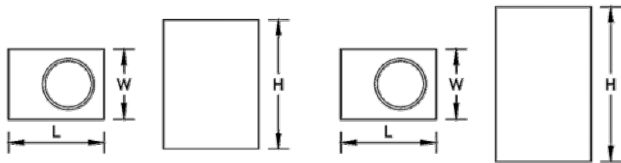
- **5 Year warranty**
- Built-in surge protection

Product Features and Accessories

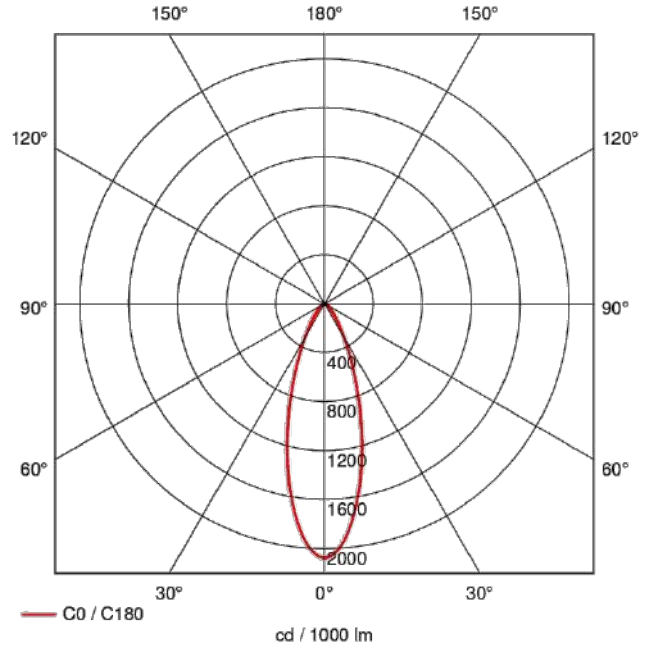
- High colour rendering index CRI > 80 (CRI > 90 available on request)
- Colour temperature 4000K (3000K on request)
- Direct replacement for HID Metal Halide 20W to 35W
- Small colour tolerance – MacAdam 3
- Chemically treated and epoxy powder coated
- Available in a wide and narrow beam (34° and 19°)

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					H	D	
SDL-150-12W-LED	2110	12.8W	0.98	350mA	150mm	100mm	1kg
SDL-150-17W-LED	2940	18.4W	0.98	500mA	150mm	100mm	1kg
SDL-200-17W-LED	2940	18.4W	0.98	500mA	200mm	100mm	1.2kg
SDL-200-25W-LED	4980	29.4W	0.98	800mA	200mm	100mm	1.2kg





Photometric Diagram



Luminaire Efficiency: 100%

Life/ Maintenance

- LED Life: 25 000hrs

Application

- Residential
- Hotels
- Retail
- Interior Architectural Lighting

Product Features and Accessories

- High colour rendering index CRI > 90
- Colour temperature 4000K or 3000K
- Small colour tolerance – MacAdam 5
- Special colours on request
- Powder coated aluminium body
- 34° beam angle
- Fully dimmable

Benefits

- 3 Year warranty

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions			Weight
				L	W	H	
WS-100-UD-GU10-7.5W	650	8W	0.7	93mm	68mm	100mm	03kg
WS-150-UD-GU10-7.5W	650	8W	0.7	93mm	68mm	150mm	0.4kg



INTERIOR CEILING LUMINAIRES



LED



LED



LED



LED



LED



LED

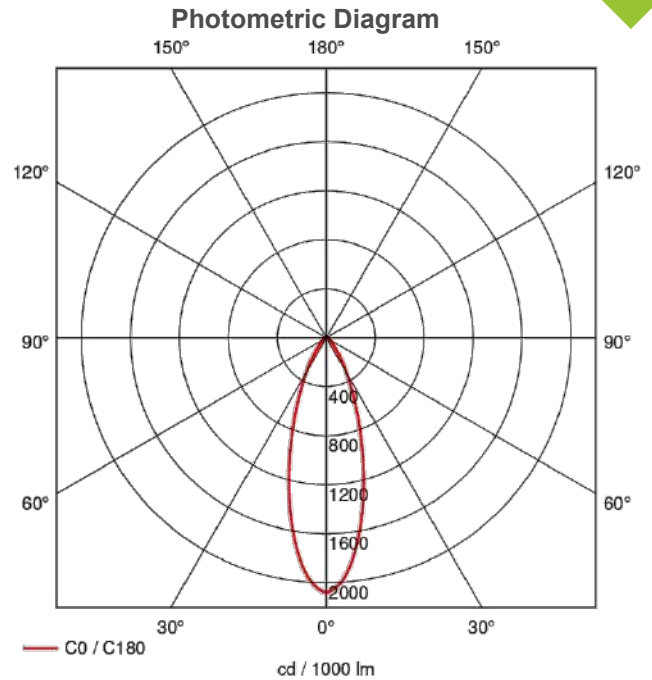
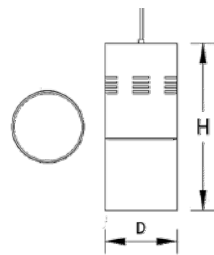
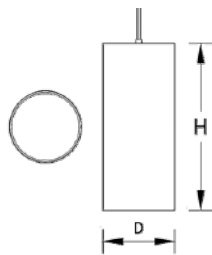




PG SOLID TUBE



PG-ACRYLIC



Life/ Maintenance

- LED Life 25 000hrs

Application

- Residential
- Retail
- Hotels
- Interior Architectural Lighting

Benefits

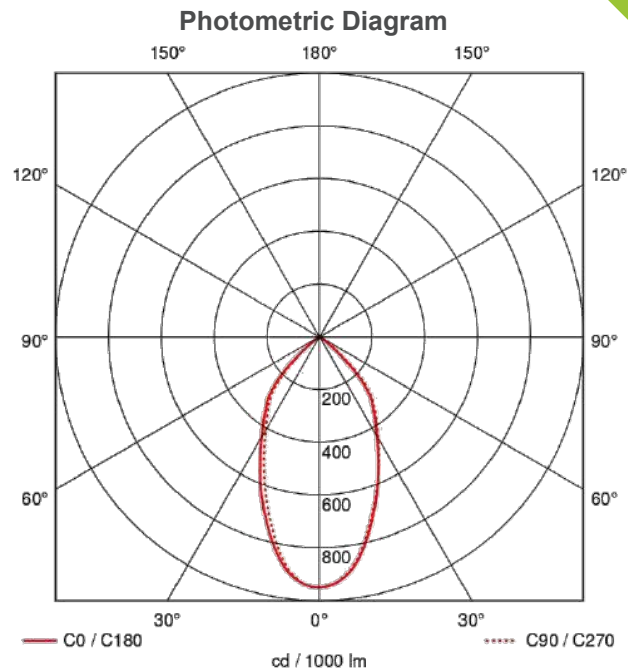
- 3 Year warranty

Product Features and Accessories

- High colour rendering index CRI > 90
- Colour temperature 4000K or 3000K
- Small colour tolerance – MacAdam 5
- Special colours on request
- Powder coated aluminium body
- 34° beam angle
- Fully dimmable

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions		Weight
				D	H	
PG-GU10-7.5W	650	8W	0.7	90mm	210mm	0.6kg
PG-A-GU10-7.5W	650	8W	0.7	90mm	310mm	1.5kg





Luminaire Efficiency: 94.3%

Life/ Maintenance

- | | |
|--------------------------|------------------------------|
| • LED Average Rated Life | 50 000hrs |
| • LED Life | 55 000hrs (L80 F10, TP 45°C) |

Application

- | | |
|------------------|-----------------------------------|
| • Retail | • Hotels |
| • Shopping Malls | • Interior Architectural Lighting |

Benefits

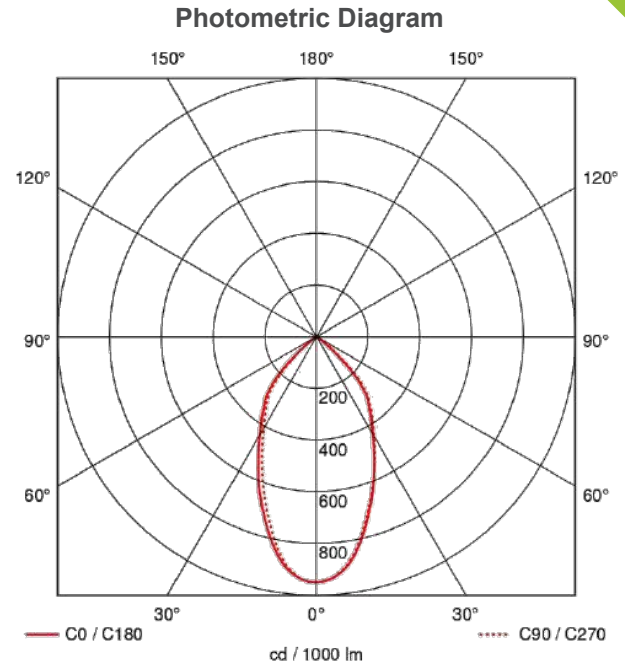
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI > 90 available on request)
- Colour temperature 4000K (3000K on request)
- Small colour tolerance – MacAdam 3
- Special colours on request
- Powder coated aluminium body
- Available in wide and narrow beam (54° and 34°)
- Integral driver
- Higher wattage and output available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
PR-150-12W	2110	12.8W	0.98	350mA	100mm	150mm	1kg
PR-150-17W	2940	18.4W	0.98	500mA	100mm	150mm	1kg
PR-200-17W	2940	18.4W	0.98	500mA	100mm	200mm	1.2kg
PR-200-25W	4980	29.4W	0.98	800mA	100mm	200mm	1.2kg





Luminaire Efficiency: 89.9%

Life/ Maintenance

- LED Average Rated Life: 50 000hrs
- LED Life: 50 000hrs (L80 F10, TP 45°C)

Application

- Retail
- Shopping Malls
- Hotels
- Interior Architectural Lighting

Benefits

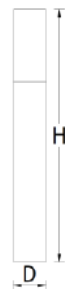
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

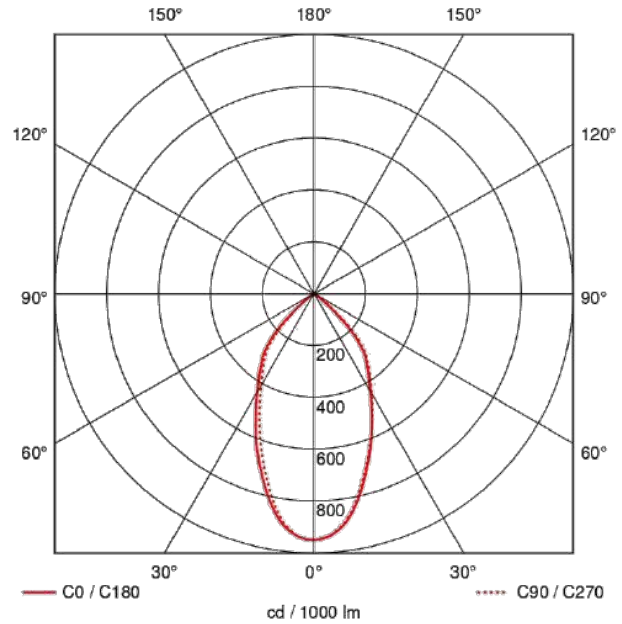
- High colour rendering index CRI > 80 (CRI > 90 available on request)
- Colour temperature 4000K (3000K on request)
- Small colour tolerance – MacAdam 3
- Special colours on request
- Powder coated aluminium body
- Available in wide and narrow beam (54° and 34°)
- Higher wattage and output available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
PA-210-12W	2110	12.8W	0.98	350mA	100mm	210mm	1.2kg
PA-210-17W	2940	18.4W	0.98	500mA	100mm	210mm	1.2kg
PA-300-12W	2110	12.8W	0.98	350mA	100mm	300mm	1.5kg
PA-300-17W	2940	18.4W	0.98	500mA	100mm	300mm	1.5kg
PA-300-25W	4980	29.4W	0.98	700mA	100mm	300mm	1.5kg





Photometric Diagram



Luminaire Efficiency: 89.9%

Life/ Maintenance

• LED Average Rated Life	50 000hrs
• LED Life	55 000hrs (L80 F10, TP 45°C)

Application

- Retail
- Shopping Malls
- Hotels
- Interior Architectural Lighting

Benefits

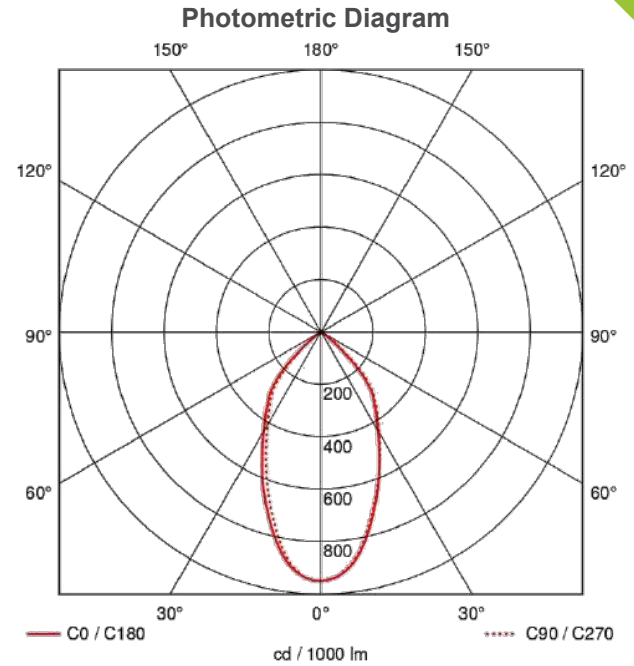
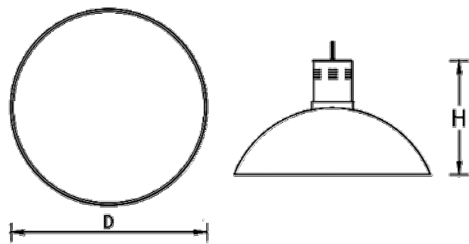
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI > 90 available on request)
- Colour temperature 4000K (3000K on request)
- Small colour tolerance – MacAdam 3
- Special colours on request
- Powder coated aluminium body
- Available in wide and narrow beam (54° and 34°)
- Higher wattage and output available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
PA-T-12W	2110	12.8W	0.98	350mA	100mm	1000mm	3.2kg
PA-T-17W	2940	18.4W	0.98	500mA	100mm	1000mm	3.2kg
PA-T-25W	4980	29.4W	0.98	800mA	100mm	1000mm	3.2kg





Luminaire Efficiency: 94.3%

Life/ Maintenance

• LED Average Rated Life	50 000hrs
• LED Life	55 000hrs (L80 F10, TP 45°C)

Application

- Retail
- Shopping Malls
- Hotels
- Interior Architectural Lighting

Benefits

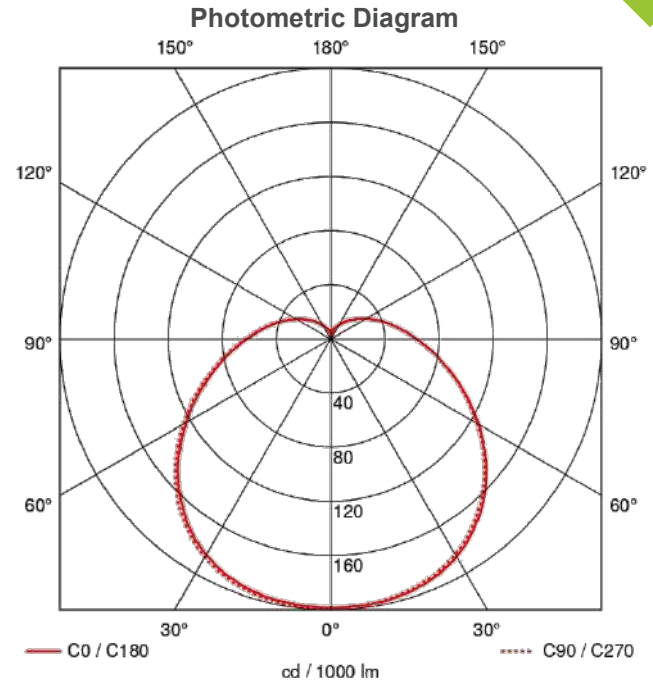
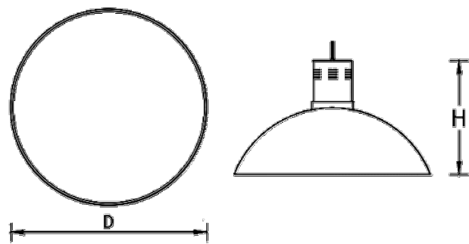
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI > 90 available on request)
- Colour temperature 4000K (3000K on request)
- Small colour tolerance – MacAdam 3
- Special colours on request
- Powder coated aluminium body
- Available in wide and narrow beam (54° and 34°)
- High wattage and output available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
PS-RG-12W	2110	14.2W	0.98	350mA	458mm	265mm	2.2kg
PS-RG-17W	2940	20.9W	0.98	500mA	458mm	265mm	2.2kg
PS-RG-25W	4980	28.6W	0.98	800mA	458mm	265mm	2.2kg





Luminaire Efficiency: 100%

Life/ Maintenance

- LED Life 25 000hrs

Application

- Residential Hotels
- Retail Interior Architectural Lighting

Benefits

- 3 Year warranty

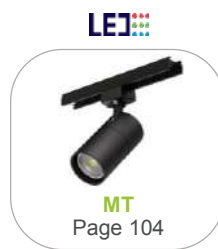
Product Features and Accessories

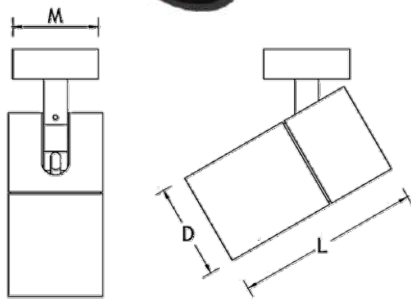
- High colour rendering index CRI > 80
- Colour temperature 4000K or 3000K
- Small colour tolerance – MacAdam 5
- Special colours on request
- Powder coated aluminium body
- E27 - LED
- Fully dimmable

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions		Weight
				D	H	
PS-E-E27-9W	806	9W	0.98	458mm	265mm	1.3kg

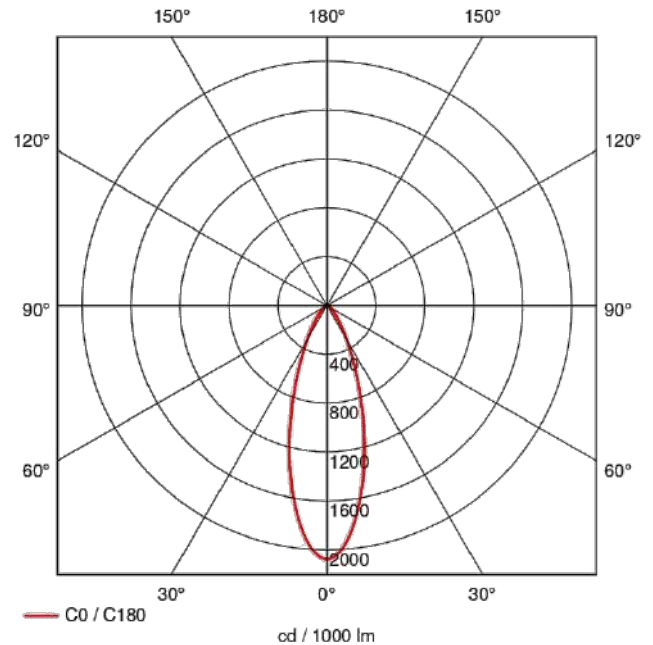


SPOTLIGHTS AND TRACK LUMINAIRES





Photometric Diagram



Luminaire Efficiency: 100%

Life/ Maintenance

- LED Life 25 000hrs

Application

- Residential
- Retail Stores
- Hotels
- Interior Architectural Lighting

Product Features and Accessories

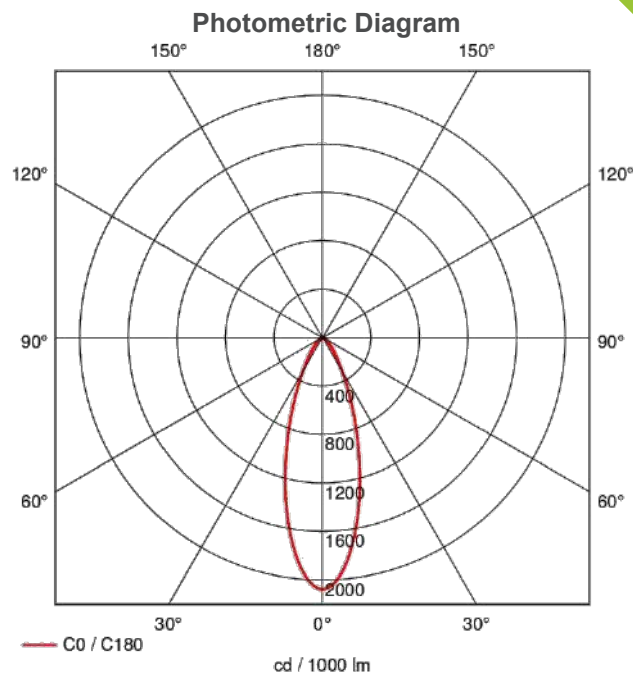
- High colour rendering index CRI > 90
- Colour temperature 4000K or 3000K
- Small colour tolerance - MacAdam 5
- Special colours available on request
- Powder coated aluminium body
- 34° beam angle
- Fully dimmable

Benefits

- 3 Year warranty

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions			Weight
				D	L	M	
MS-GU10-7.5W	650	8W	0.7	63mm	122mm	57mm	0.4kg





Luminaire Efficiency: 100%

Life/ Maintenance

- LED Life 25 000hrs

Application

- Residential
- Retail Stores
- Hotels
- Interior Architectural Lighting

Product Features and Accessories

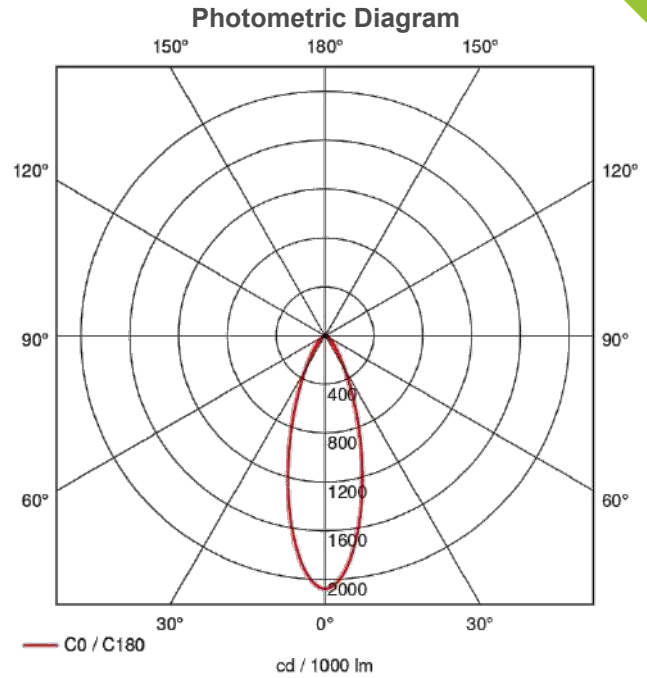
- High colour rendering index CRI > 90
- Colour temperature 4000K or 3000K
- Small colour tolerance - MacAdam 5
- Special colours available on request
- Powder coated aluminium body
- 34° beam angle
- Fully dimmable

Benefits

- 3 Year warranty

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions			Weight
				D	L	M	
MD-GU10-7.5W	650	8W	0.7	63mm	122mm	180x76mm	0.4kg





Luminaire Efficiency: 100%

Life/ Maintenance

- LED Life 25 000hrs

Application

- Residential
- Retail Stores
- Hotels
- Interior Architectural Lighting

Product Features and Accessories

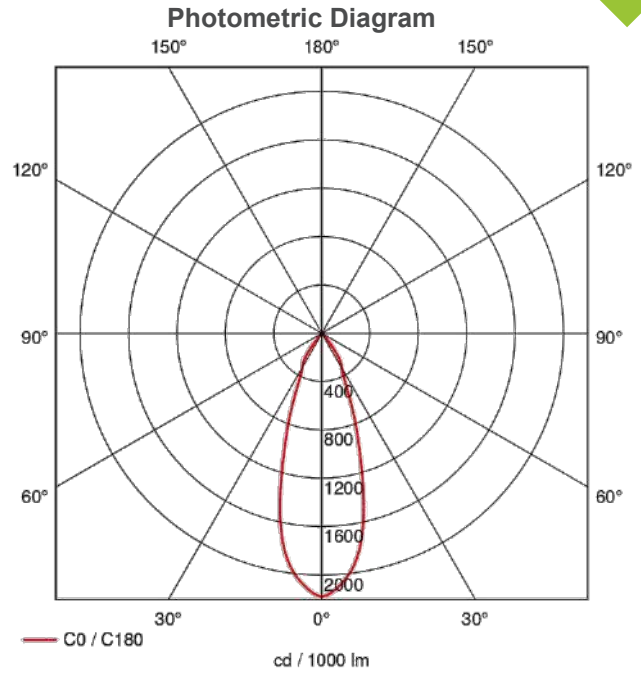
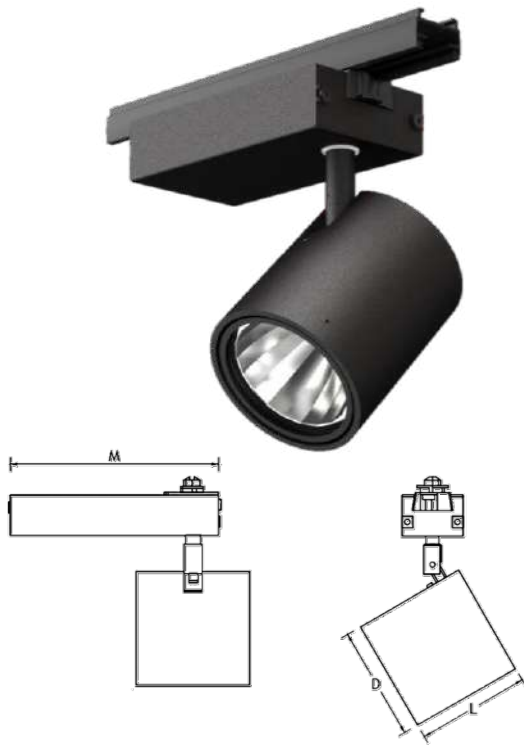
- High colour rendering index CRI > 90
- Colour temperature 4000K or 3000K
- Small colour tolerance - MacAdam 5
- Special colours available on request
- Powder coated aluminium body
- 34° beam angle
- Fully dimmable

Benefits

- **3 Year warranty**
- Built-in surge Protection

Specification	Lumen @ 45°C	System Power	Power Factor	Dimensions		Weight
				D	L	
MT-GU10-7.5W	650	8W	0.7	63mm	122mm	0.4kg





Luminaire Efficiency: 96.7%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L80 F10, TP 45°C)

Application

- Retail Stores
- Shopping Malls
- Hotels
- Interior Architectural Lighting

Benefits

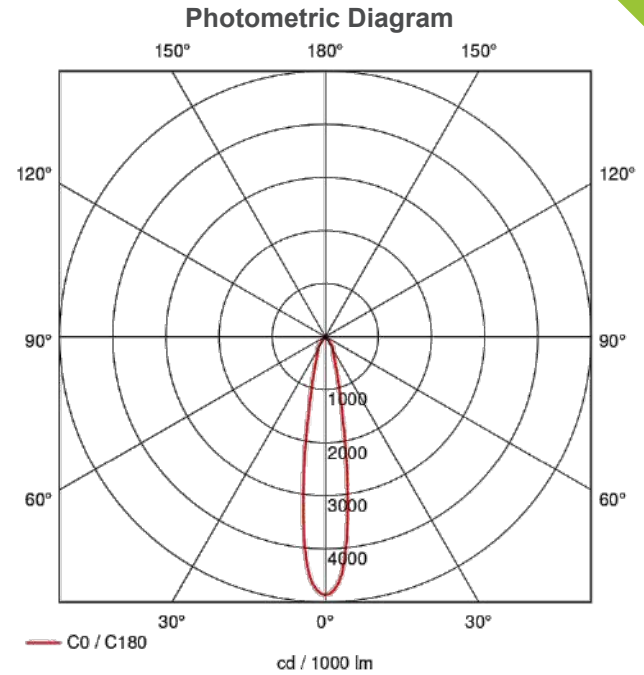
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI >90 available on request)
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Special colours on request
- Powder coated aluminium body
- Available in wide and narrow beam angle (34° and 19°)
- Higher wattage and output available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					D	L	M	
M19-12W	2115	14.2W	0.98	350mA	100mm	100mm	214x56mm	1kg
M19-17W	2950	20.9W	0.98	500mA	100mm	100mm	214x56mm	1kg
M19-25W	4010	28.6W	0.98	700mA	100mm	100mm	214x56mm	1kg





Luminaire Efficiency: 97.1%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L80 F10, TP 45°C) |

Application

- | | |
|------------------|----------------------------------|
| • Retail Stores | • Hotels |
| • Shopping Malls | • Interior Architectural Lightig |

Benefits

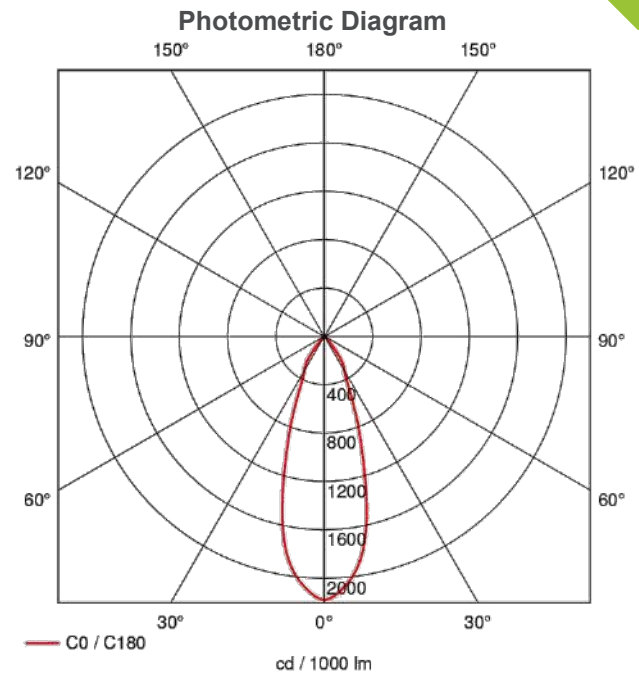
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI >90 available on request)
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Special colours on request
- Powder coated aluminium body
- Available in wide and narrow beam angle (34° and 19°)
- Higher wattage and output available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					D	L	M	
M16-12W	2115	14.2W	0.98	350mA	100mm	100mm	214x56mm	1.1kg
M16-17W	2950	20.9W	0.98	500mA	100mm	100mm	214x56mm	1.1kg
M16-25W	4010	28.6W	0.98	700mA	100mm	100mm	214x56mm	1.1kg





Luminaire Efficiency: 96.7%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L80 F10, TP 45°C)

Application

- Retail Stores
- Shopping Malls
- Hotels
- Interior Architectural Lighting

Benefits

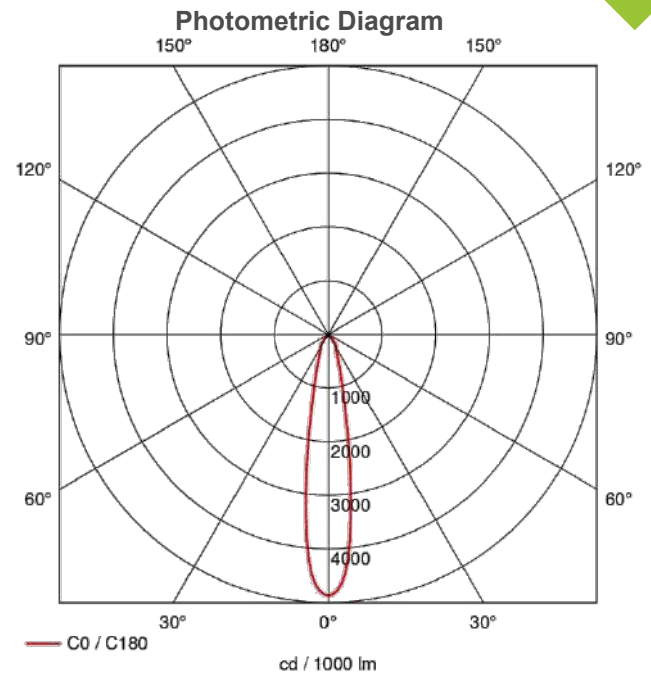
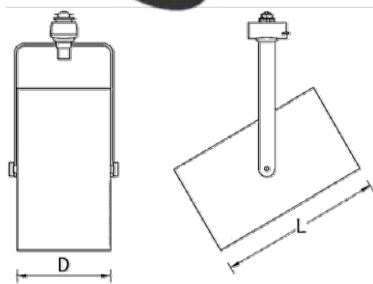
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80 (CRI >90 available on request)
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Special colours on request
- Powder coated aluminium body
- Available in wide and narrow beam angle (34° and 19°)
- Higher wattage and output available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					H	L	D	
M18-12W	2115	14.2W	0.98	350mA	200mm	110mm	89mm	1kg
M18-17W	2950	20.9W	0.98	500mA	200mm	110mm	89mm	1kg
M18-25W	4010	28.6W	0.98	700mA	200mm	110mm	89mm	1kg





Luminaire Efficiency: 97.1%

Life/ Maintenance

- | | |
|---------------------------------|------------------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L80 F10, TP 45°C) |

Application

- | | |
|------------------|-----------------------------------|
| • Retail Stores | • Hotels |
| • Shopping Malls | • Interior Architectural Lighting |

Benefits

- 5 Year warranty
- Built-in surge Protection

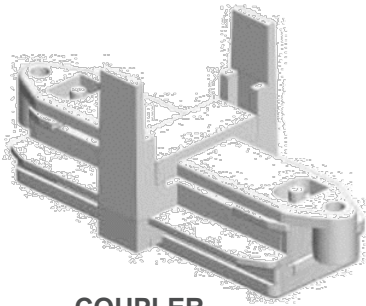
Product Features and Accessories

- High colour rendering index CRI > 80 (CRI >90 available on request)
- Colour temperature 4000K (3000K on request)
- Small colour tolerance - MacAdam 3
- Special colours on request
- Powder coated aluminium body
- Available in wide and narrow beam angle (34° and 19°)
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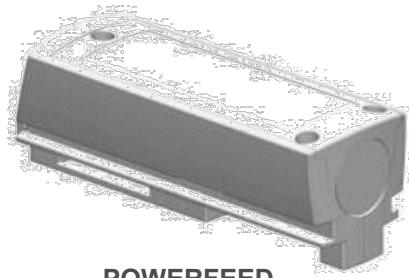
Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions		Weight
					L	D	
M20-12W	2115	14.2W	0.98	350mA	220mm	127mm	1.5kg
M20-17W	2950	20.9W	0.98	500mA	220mm	127mm	1.5kg
M20-25W	4010	28.6W	0.98	700mA	220mm	127mm	1.5kg



LASCON[®] MTRACK ACCESORIES



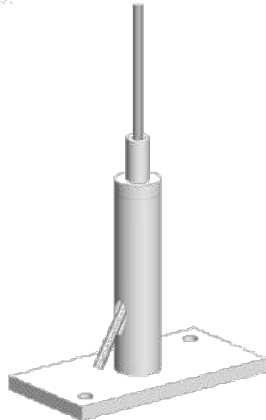
COUPLER



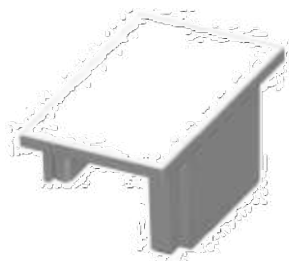
POWERFEED



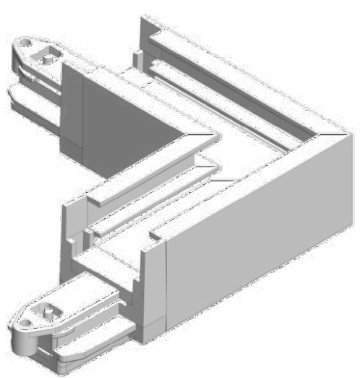
TRACK ADAPTOR FOR PENDANT



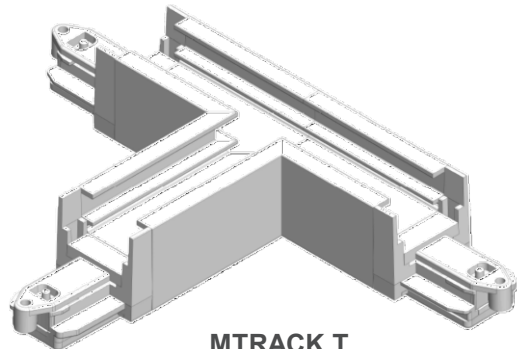
TRACK SUSPENSION KIT



MTRACK ENDCAP



MTRACK CORNER



MTRACK T

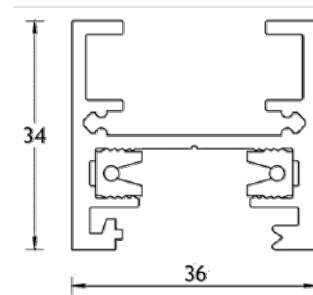
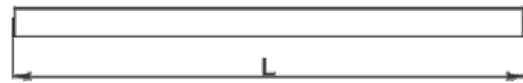
Application

- Offices
- Retail Stores
- Lecture Halls
- Reception

Product Features and Accessories

- Single phase track
- Degree of protection IP20
- Maximum power supply: 16A 220-240V
- Extruded aluminium body
- Available in matt black and white aluminium
- Other colours on request
- Custom lengths to order
- Available in standard 1000mm, 1500mm, 2000mm, 3000mm
- Standard suspension cables length 4000mm

LASCON[®] MTRACK ACCESORIES



Application

- Retail Stores
- Offices
- Lecture Halls
- Reception Areas

Product Features and Accessories

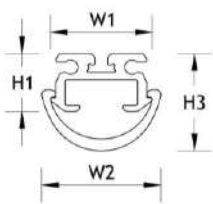
- Single phase track
- Degree of protection IP20
- Maximum power supply: 16A 220-240V
- Extruded aluminum body
- Available in matt black and white aluminium
- Custom lengths to border
- Available in standard 1000mm, 1500mm, 2000mm, 3000mm

Specification	Power Factor	Dimensions			Weight
		L	W	H	
MTRACK - 1000	16A 220-240V	1000mm	36mm	34mm	0.85kg
MTRACK - 1500	16A 220-240V	1500mm	36mm	34mm	1.3kg
MTRACK - 2000	16A 220-240V	2000mm	36mm	34mm	1.7kg
MTRACK - 3000	16A 220-240V	3000mm	36mm	34mm	2.6kg

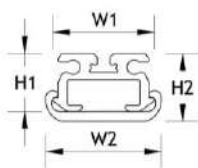




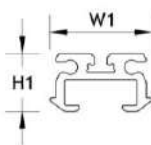
Curved Diffuser



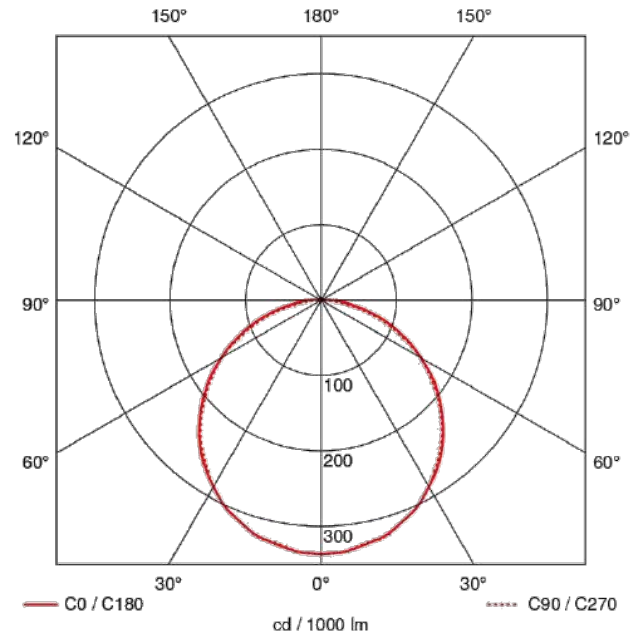
Flat Diffuser



Open Diffuser



Photometric Diagram



Luminaire Efficiency: 80%

Life/ Maintenance

- LED Driver Average Rated Life 50 000hrs
- LED Life 50 000hrs (L70 F10)

Application

- Retail Stores
- Shopping Malls
- Offices
- Hotels

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

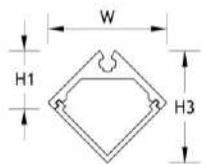
- High colour rendering index CRI > 80
- Colour temperature 3000K (4000K and 5000K on request)
- 6063T6 Grade extruded Aluminium
- Remote control gear
- Clear and Opal Diffusers available
- Finish – natural and black anodized
- 5W, 10W and 15W versions available
- Custom cut length up to 5m
- DALI and dimmable options available
- Fixing via clips
- Magnetic tape fixing available
- Mechanical clips available in 0°, 15°, 30°, 45° and 60°

Specification	Lumen per m	System Power	Power Factor	Dimensions					Weight
				W1	W2	H1	H2	H3	
SLIMLINE - 5W	850	6W	0.96	18mm	20mm	10mm	12mm	17mm	0.2kg p/m
SLIMLINE - 10W	1700	12W	0.96	18mm	20mm	10mm	12mm	17mm	0.2kg p/m
SLIMLINE - 15W	2020	17W	0.96	18mm	20mm	10mm	12mm	17mm	0.2kg p/m

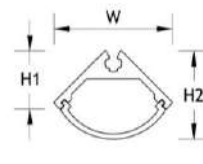




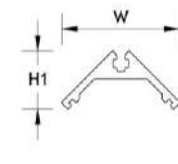
Square Diffuser



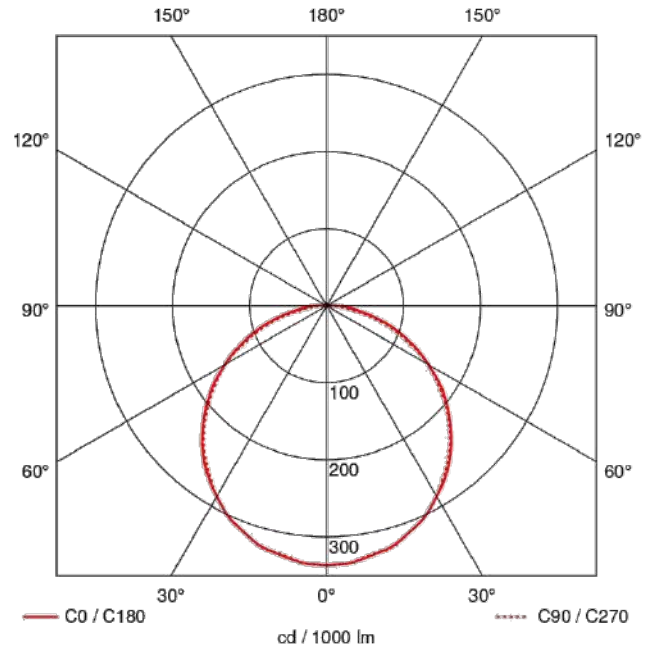
Curved Diffuser



Open Diffuser



Photometric Diagram



Luminaire Efficiency: 80%

Life/ Maintenance

- LED Driver Average Rated Life 50 000hrs
- LED Life 50 000hrs (L70 F10)

Application

- Coves
- Display Cabinets

Benefits

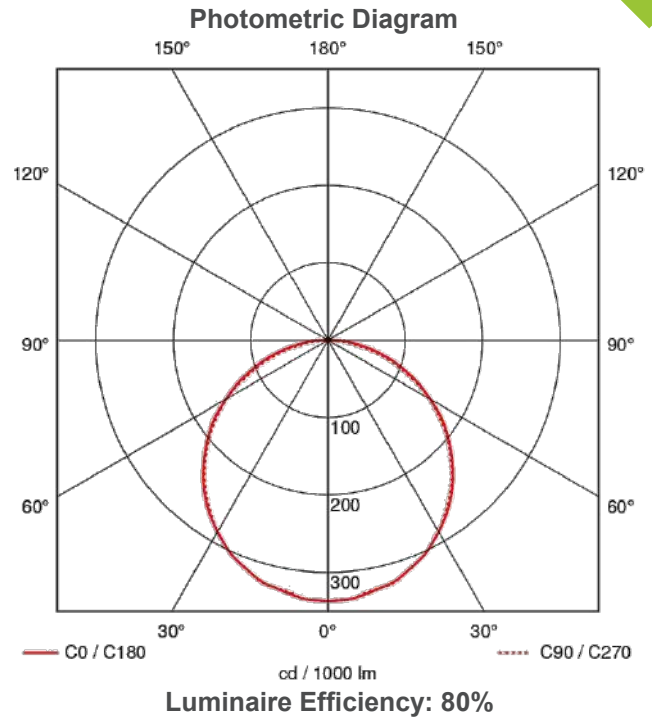
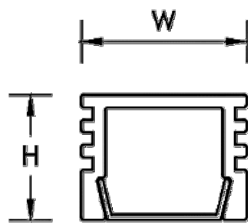
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 3000K (4000K and 5000K on request)
- 6063T6 Grade extruded Aluminium
- Remote control gear
- Clear and Opal Diffusers available
- Finish – natural and black anodized
- 10W and 15W versions available
- Custom cut length up to 5m
- Fully dimmable
- Fixing via clips

Specification	Lumen per m	System Power	Power Factor	Dimensions				Weight
				W	H1	H2	H3	
HAWK - 5W	850	6W	0.96	23mm	21mm	17mm	11mm	0.2kg p/m
HAWK - 10W	1700	12W	0.96	23mm	21mm	17mm	11mm	0.2kg p/m
HAWK - 15W	2020	17W	0.96	23mm	21mm	17mm	11mm	0.2kg p/m





Life/ Maintenance

- | | |
|---------------------------------|---------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L70 F10) |

Application

- Coves
- Display Cabinets

Benefits

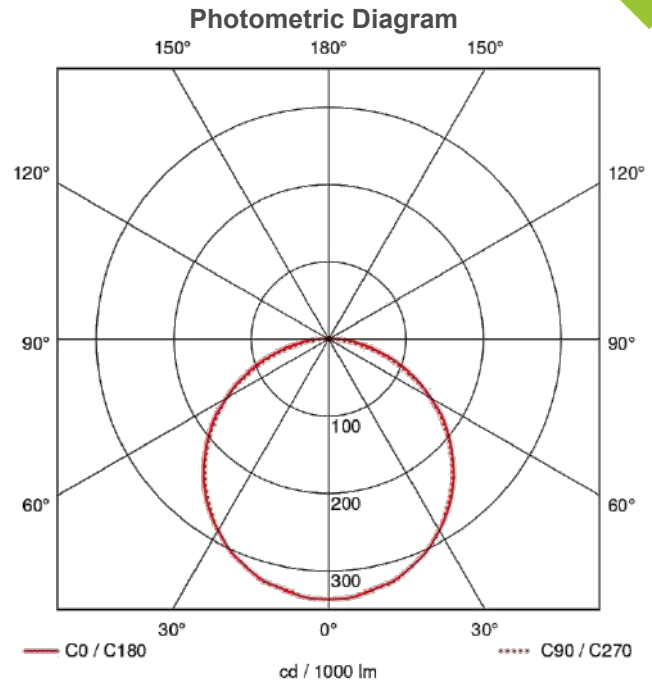
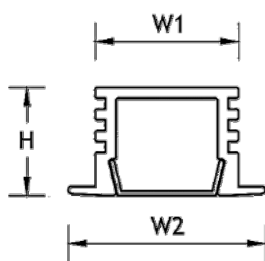
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 3000K (4000K and 5000K on request)
- 6063T6 Grade extruded Aluminium
- Remote control gear
- Frosted low loss acrylic diffuser
- Finish – natural and black anodized
- 10W and 15W versions available
- Custom cut length up to 5m
- Fully dimmable
- Fixing via clips

Specification	Lumen per m	System Power	Power Factor	Dimensions		Weight
				W	H	
IMPALA-S- 10W	1700	12W	0.96	16mm	12mm	0.2kg p/m
IMPALA-S - 15W	2020	17W	0.96	16mm	12mm	0.2kg p/m





Luminaire Efficiency: 80%

Life/ Maintenance

- | | |
|---------------------------------|---------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L70 F10) |

Application

- Coves
- Display Cabinets

Benefits

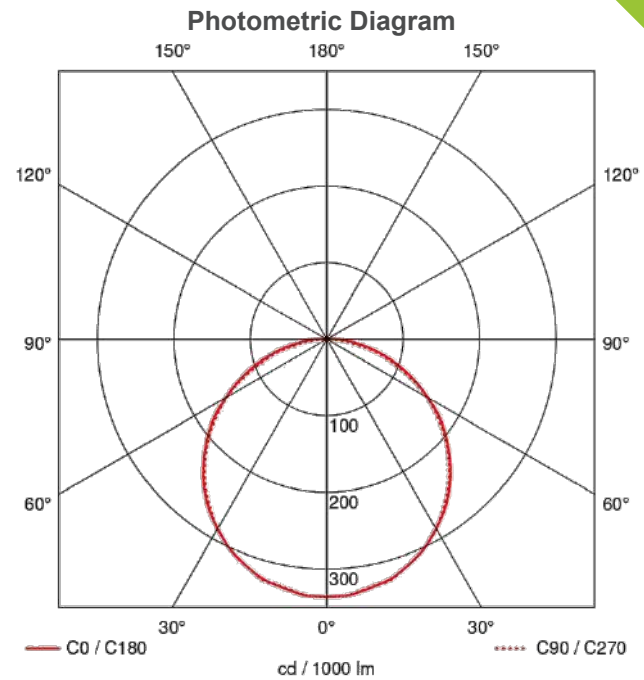
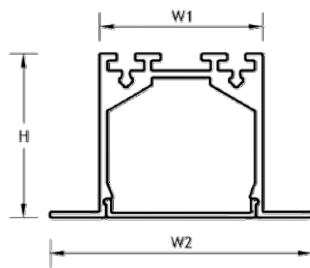
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 3000K (4000K and 5000K on request)
- 6063T6 Grade extruded Aluminium
- Remote control gear
- Frosted low loss acrylic diffuser
- Finish – natural and black anodized
- 10W and 15W versions available
- Custom cut length up to 5m
- Fully dimmable
- Fixing via clips

Specification	Lumen per m	System Power	Power Factor	Dimensions			Weight
				W1	W1	H	
IMPALA-R- 10W	1700	12W	0.96	16mm	22mm	12mm	0.2kg p/m
IMPALA-R - 15W	2020	17W	0.96	16mm	22mm	12mm	0.2kg p/m





Luminaire Efficiency: 80%

Life/ Maintenance

- | | |
|---------------------------------|---------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L70 F10) |

Application

- | | |
|-----------------------------|--------------------|
| • Residential | • Conference Rooms |
| • Offices / Reception Areas | • Hotels |

Benefits

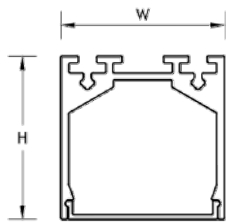
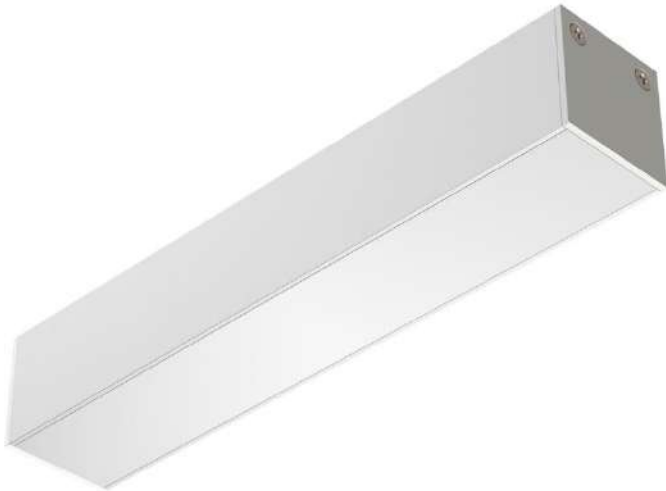
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

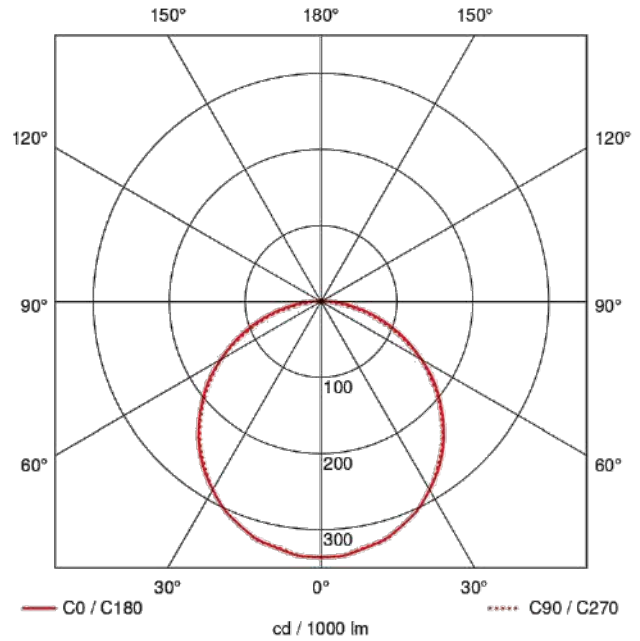
- High colour rendering index CRI > 80
- Colour temperature 3000K (4000K and 5000K on request)
- 6063T6 Grade extruded Aluminium
- Remote control gear
- Frosted low loss acrylic diffuser
- Finish – natural and black anodized, white powder coated
- 10W, 15W and 25W versions available
- Custom cut length up to 5m
- Fully dimmable

Specification	Lumen per m	System Power	Power Factor	Dimensions				Weight
				Cut Out	W1	W2	H	
LYNX-R - 10W	1050	12W	0.96	37mm	35.5mm	57mm	35.5mm	0.75kg p/m
LYNX-R - 15W	2020	17W	0.96	37mm	35.5mm	57mm	35.5mm	0.75kg p/m
LYNX-R - 25W	3700	28W	0.96	37mm	35.5mm	57mm	35.5mm	0.75kg p/m





Photometric Diagram



Luminaire Efficiency: 80%

Life/ Maintenance

- | | |
|---------------------------------|---------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L70 F10) |

Application

- | | |
|-----------------------------|--------------------|
| • Residential | • Conference Rooms |
| • Offices / Reception Areas | • Hotels |

Benefits

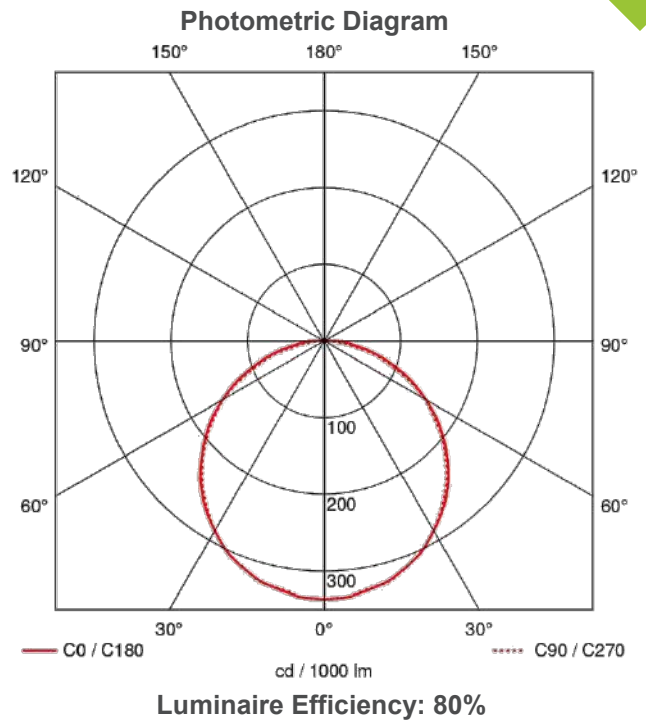
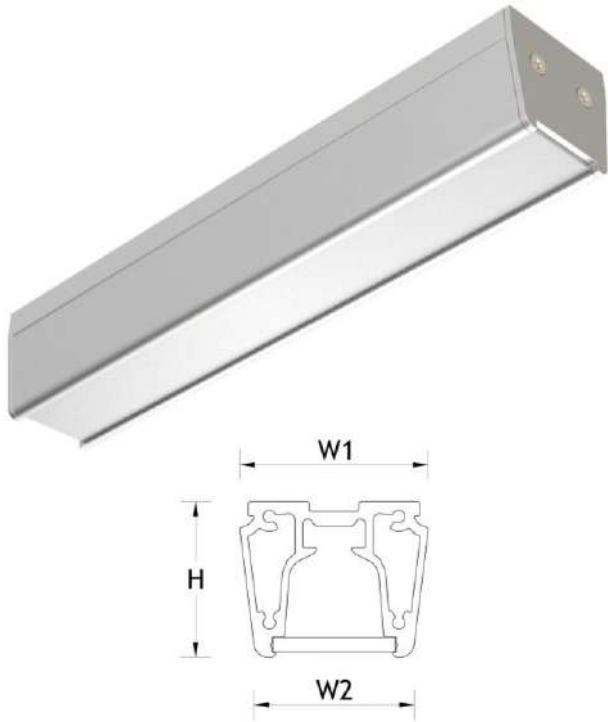
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 3000K (4000K and 5000K on request)
- 6063T6 Grade extruded Aluminium
- Remote control gear
- Frosted low loss acrylic diffuser
- Finish – natural and black anodized, white powder coated
- 10W, 15W and 25W versions available
- Custom cut length up to 5m
- Fully dimmable

Specification	Lumen per m	System Power	Power Factor	Dimensions		Weight
				W	H	
LYNX-S - 10W	1050	12W	0.96	35.5mm	35.5mm	0.75kg p/m
LYNX-S - 15W	2020	17W	0.96	35.5mm	35.5mm	0.75kg p/m
LYNX-S - 25W	3700	28W	0.96	35.5mm	35.5mm	0.75kg p/m





Life/ Maintenance

- | | |
|---------------------------------|---------------------|
| • LED Driver Average Rated Life | 50 000hrs |
| • LED Life | 50 000hrs (L70 F10) |

Application

- | | |
|---------------|-----------------|
| • Residential | • Offices |
| • Hotels | • Retail Stores |

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 3000K (4000K and 5000K on request)
- 6063T6 Grade extruded Aluminium
- Remote control gear
- Frosted low loss acrylic diffuser
- Finish – natural and black anodized, white powder coated
- 5W, 10W and 15W versions available
- Custom cut length up to 5m
- DALI and dimmable options available

Specification	Lumen per m	System Power	Power Factor	Dimensions			Weight
				W1	W2	H	
CLOSED-CHANNEL - 5W	850	6W	0.96	38mm	34.6mm	35.7mm	1.2kg p/m
CLOSED-CHANNEL - 10W	1700	12W	0.96	38mm	34.6mm	35.7mm	1.2kg p/m
CLOSED-CHANNEL - 15W	2020	17W	0.96	38mm	34.6mm	35.7mm	1.2kg p/m



CORROSION PROOF LUMINAIRES



LED



LED

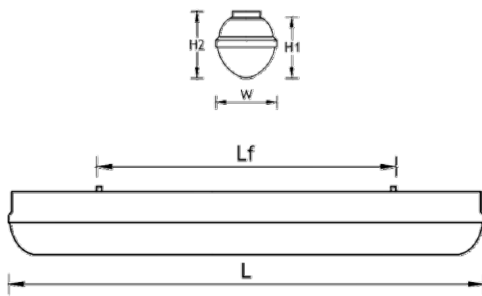


LED

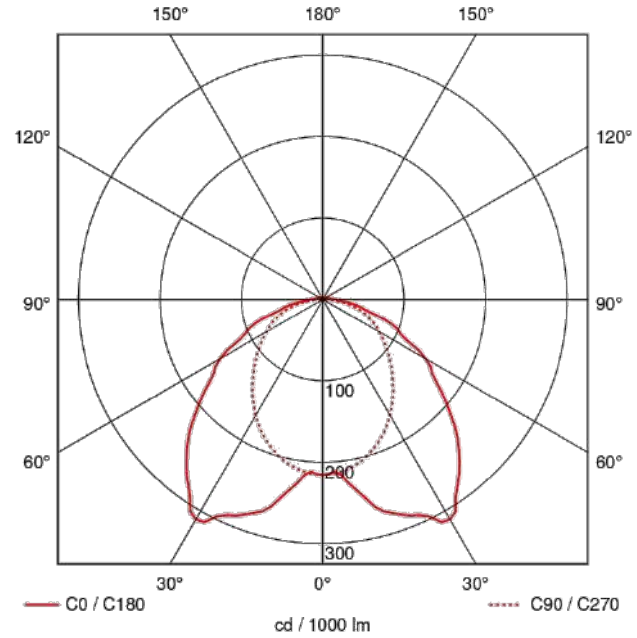


LED





Photometric Diagram



Luminaire Efficiency: 88.12%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Parking Garages
- Industrial Halls
- Cold Storage Facilities
- Power Stations

Benefits

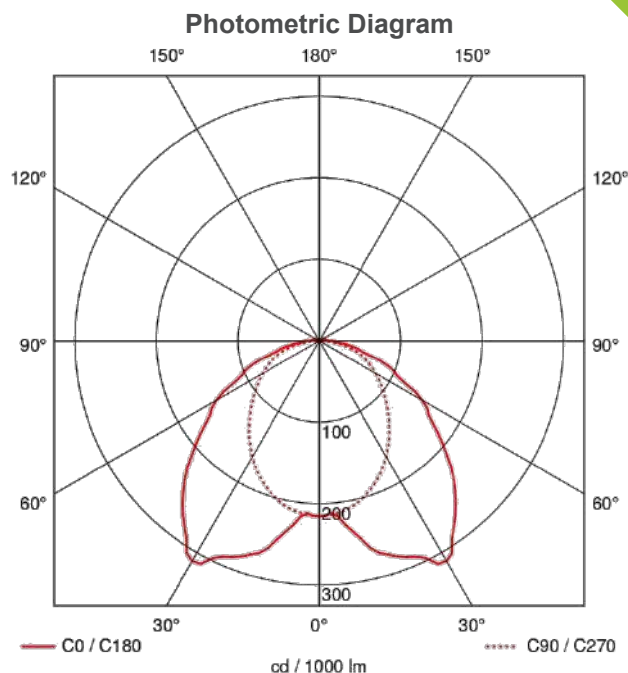
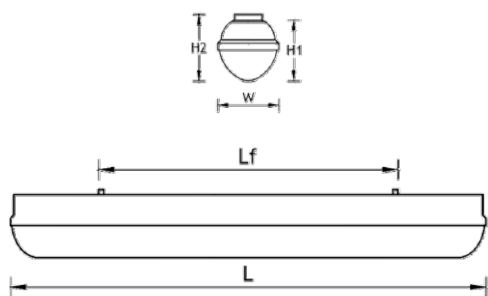
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Self-extinguishing polycarbonate body
- UV stabilized, self-extinguishing polycarbonate diffuser with photo-engraved interior and smooth outer surface
- Anti-tamper polycarbonate snap-lock latches (stainless steel on request)
- Hinge-able gear tray
- Complete with mounting accessories
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency version

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions					Weight
					L	Lf	W	H1	H2	
C10-HE-24W-LED	4561	26.7W	0.98	275mA	1270mm	795mm	100mm	100mm	110mm	2kg
C10-HE-34W-LED	6118	37.7W	0.98	375mA	1270mm	795mm	100mm	100mm	110mm	2kg





Luminaire Efficiency: 88.12%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Parking Garages
- Industrial Halls
- Cold Storage Facilities
- Power Stations

Benefits

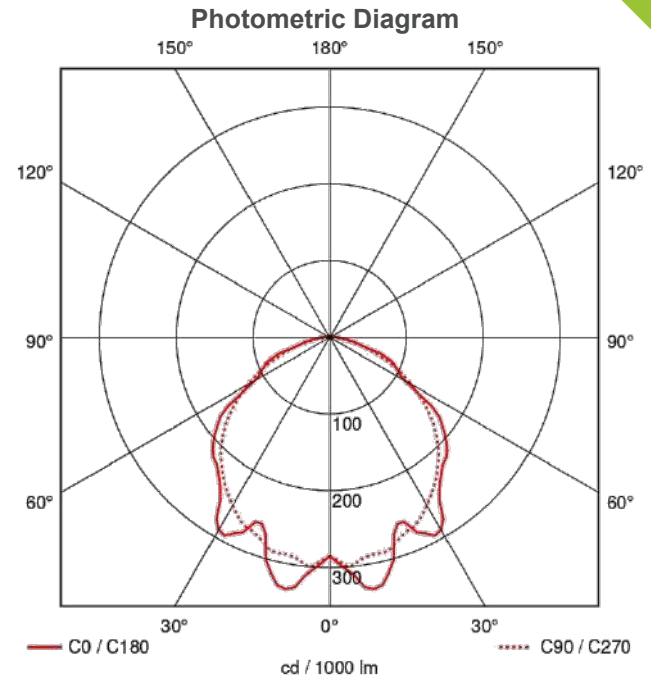
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -25...+45°C
- Self-extinguishing polycarbonate body
- UV stabilized, self-extinguishing polycarbonate diffuser with photo-engraved interior and smooth outer surface
- Anti-tamper polycarbonate snap-lock latches (stainless steel on request)
- Hinge-able gear tray
- Complete with mounting accessories
- DALI/DSI and dimmable options available
- Emergency options available
- High output version

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions					Weight
					L	Lf	W	H1	H2	
C10-HO-43W-LED	7986	47.8W	0.98	325mA	1270mm	795mm	100mm	100mm	110mm	2kg
C10-HO-54W-LED	9838	59.6W	0.98	400mA	1270mm	795mm	100mm	100mm	110mm	2kg





Luminaire Efficiency: 89.2%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Wet Areas
- Industrial
- Cold Rooms
- Food Processing

Benefits

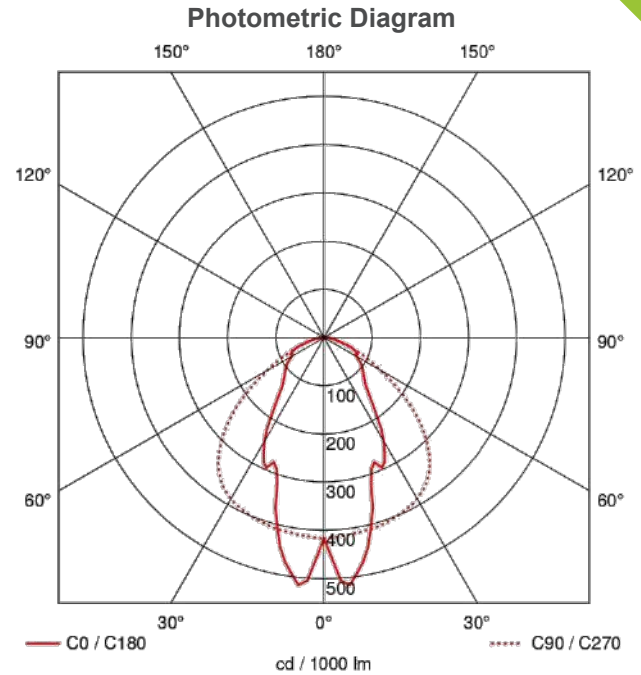
- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -30...+45°C
- Glass reinforced polyester (GRP) body
- UV stabilized, self-extinguishing polycarbonate diffuser
- Hinge-able gear tray
- Stainless steel latches
- Complete with 2 x P2000 mounting brackets and 4 x M5 eyebolts
- Complete with IP65 quick connector
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
C-BAY-WB-102W-LED	18 354	111.3W	0.98	375mA	1330mm	350mm	130mm	8.2kg
C-BAY-WB-136W-LED	24 472	148.2W	0.98	375mA	1330mm	350mm	130mm	8.5kg





Luminaire Efficiency: 86.91%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Wet Areas
- Industrial Halls
- Cold Rooms
- Food Processing

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -30...+45°C
- Glass reinforced polyester (GRP) body
- UV stabilized, self-extinguishing polycarbonate diffuser
- Hinge-able gear tray
- Stainless steel latches
- Complete with 2 x P2000 mounting brackets and 4 x M5 eyebolts
- Complete with IP65 quick connector
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
C-BAY-NB-102W-LED	18 354	111.3W	0.98	375mA	1330mm	350mm	130mm	8.2kg
C-BAY-NB-136W-LED	24 472	148.2W	0.98	375mA	1330mm	350mm	130mm	8.5kg



HIGH BAY AND MEDIUM BAY LUMINAIRES



LEJ



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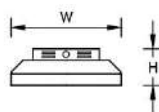


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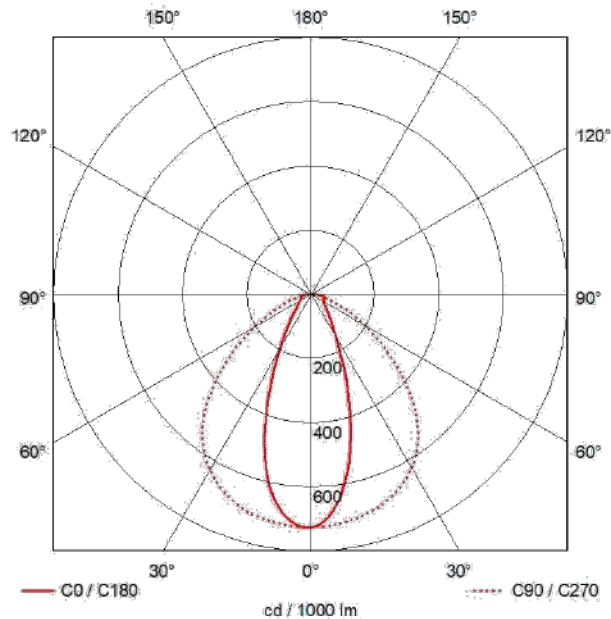


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Photometric Diagram



Luminaire Efficiency: 96%

Life/ Maintenance

LED Driver Average Rated Life	120 000hrs
LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Warehouse
- High Racking
- Industrial
- Factory

Benefits

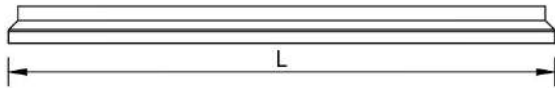
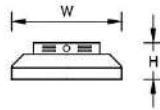
- 5 Year warranty
- Built-in surge Protection of 4kV

Product Features and Accessories

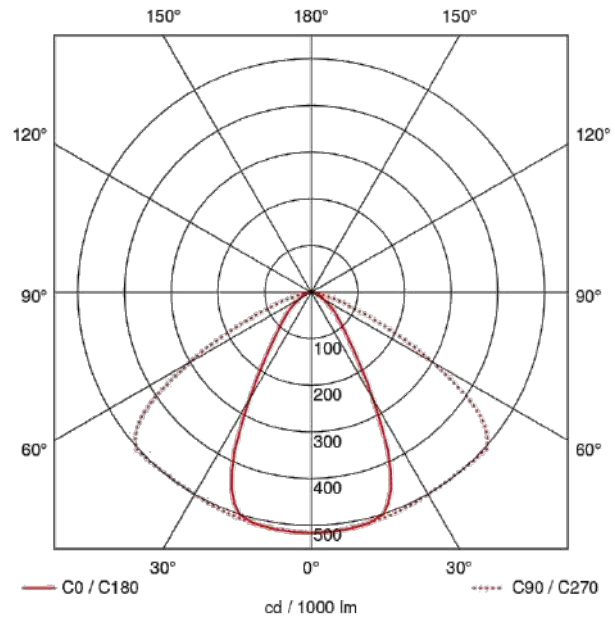
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -40...+80°C
- Complete with 2 x P2000 mounting brackets and 4 x M5 eyebolts
- Surface or recessed
- Rolled mild steel body with a structured silver epoxy powder coated finish
- Complete with 3m cabtyre and 5 Amp plug
- HUBBELL end mount WASP sensor available
- DALI/DSI and dimmable options available
- Emergency options available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
A-BAY-IND-54W-LED	9878	58.5W	0.98	300mA	1195mm	240mm	80mm	5kg
A-BAY-IND-72W-LED	13117	79.4W	0.98	400mA	1195mm	240mm	80mm	5kg
A-BAY-IND-108W-LED	19676	119W	0.98	400mA	1195mm	240mm	80mm	5kg
A-BAY-IND-136W-LED	23896	142W	0.98	500mA	1195mm	240mm	80mm	5kg





Photometric Diagram



Luminaire Efficiency: 92.3%

Life/ Maintenance

LED Driver Average Rated Life	120 000hrs
LED Life	72 000hrs (L80 F10, TP 65°C)

Application

- Warehouse
- Industrial
- Aisles
- Factory

Benefits

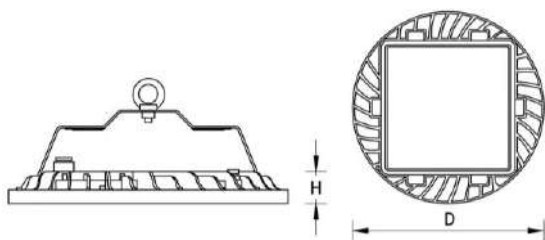
- 5 Year warranty
- Built-in surge Protection of 4kV

Product Features and Accessories

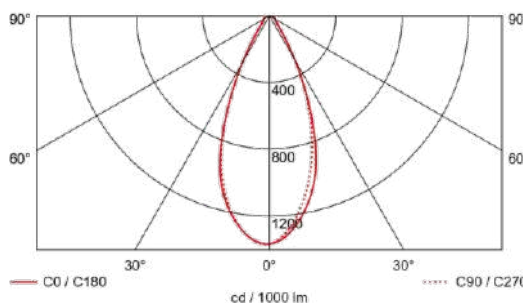
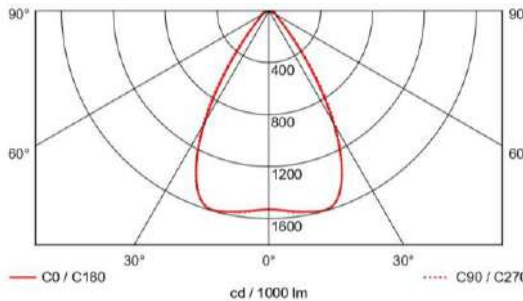
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Small colour tolerance - MacAdam 3
- Tridonic LED module and driver
- Ripple current < 3%
- All fixtures component parts are replaceable
- Ambient temperature: -40...+80°C**
- Designed for quick and easy installation. Comes complete with 2 x P2000 mounting brackets and 4 x M5 eyebolts
- Rolled mild steel body with a structured silver epoxy powder coated finish
- Complete with 3m cabyre and 5 Amp plug
- Complete with medium bay optic
- DALI/DSI and dimmable options available
- Emergency options available
- High efficiency and high output versions

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
L-BAY-IND-54W-LED	9878	58.5W	0.98	300mA	1195mm	240mm	80mm	5kg
L-BAY-IND-72W-LED	13117	79.4W	0.98	400mA	1195mm	240mm	80mm	5kg
L-BAY-IND-108W-LED	19676	119W	0.98	400mA	1195mm	240mm	80mm	5kg
L-BAY-IND-136W-LED	23896	142W	0.98	500mA	1195mm	204mm	80mm	5kg





Photometric Diagram



Luminaire Efficiency: 84.2%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	50 000hrs (L70 F10, TP 45°C)

Application

- Warehouse Lighting
- Factories
- General Lighting

Benefits

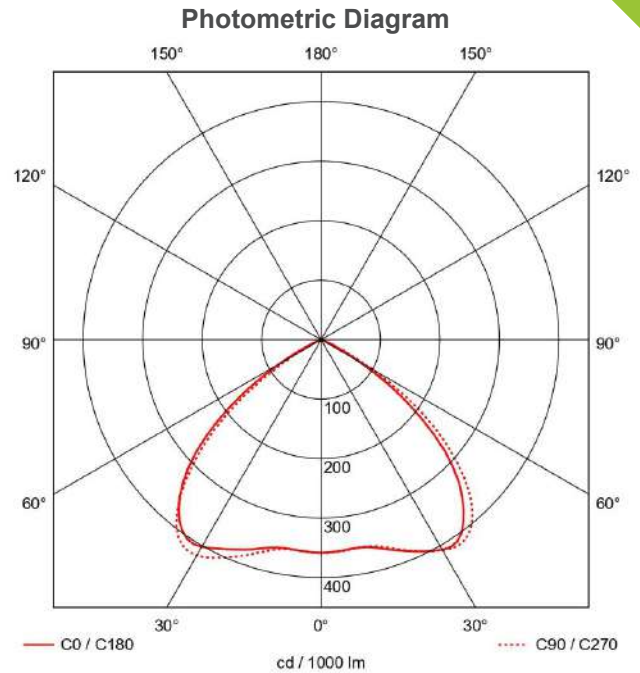
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Vossloh Schwabe Modules and Drivers
- LM6 die cast chemically treated epoxy powder coated aluminium body
- Heat tempered glass lens (Polycarbonate lens available on request)
- Hot dipped galvanized stirrup
- 316 stainless steel screws and heli coils
- 316 stainless steel fasteners
- DALI /DSI options available
- Narrow and medium beam available on request

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	D	H	
G6-120W-LED	17353	132.0W	0.95	850mA	467mm	467mm	45mm	6.5kg
G6-160W-LED	23920	179.2W	0.95	900mA	467mm	467mm	45mm	6.5kg
G6-200W-LED	28390	220.6W	0.95	1050mA	467mm	467mm	45mm	6.5kg





Luminaire Efficiency: 91%

Life/ Maintenance

- | | |
|---------------------------------|-------------------------------|
| • LED Driver Average Rated Life | 100 000hrs |
| • LED Life | 100 000hrs (L70 F10, TP 55°C) |

Application

- Warehouse
- Large Indoor Spaces
- Light Manufacturing

Benefits

- **10 Year warranty**
- Built-in surge Protection

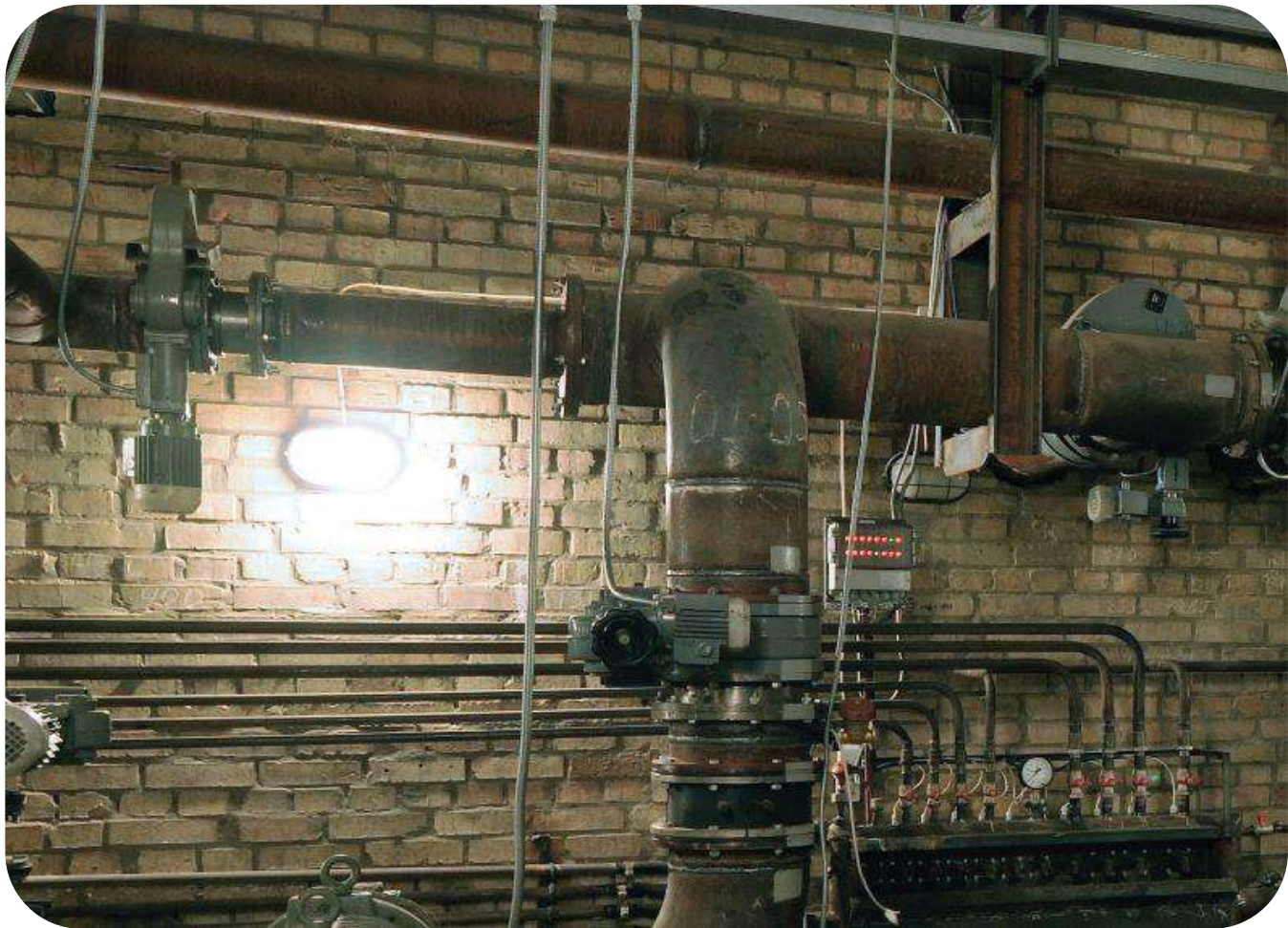
Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (5000K on request)
- Ambient temperature: -40... +55°C
- Polycarbonate (upper) Aluminium (lower) housing
- Superior dual coat finish with sealed polyester topcoat and epoxy primer
- Acrylic lens (polycarbonate & glass options available)
- 304 stainless steel mounting bracket
- Available in medium and aisle beam
- 100VAC to 277VAC
- DALI and dimmable options available
- Wide beam and narrow beam optics available

Specification	Lumen @ 55°C	System Power	Power Factor	Dimensions		Weight
				D	H	
RRE-114W-LED	16900	125.4W	0.9	439mm	167mm	9.3kg
RRE-159W-LED	22800	174.9W	0.9	439mm	167mm	9.3kg
RRE-191W-LED	28200	210.1W	0.9	439mm	167mm	9.3kg
RRE-232W-LED	33800	255.2W	0.9	439mm	167mm	9.3kg



BULKHEAD LUMINAIRES



LEJ



B40
Page 134

LEJ



B40 - RETROFIT
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B41
Page 136

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B41 - RETROFIT
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B40 PLATE-C
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B40 PLATE-LG
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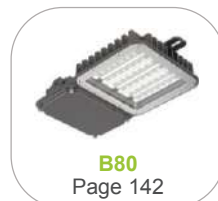
B42
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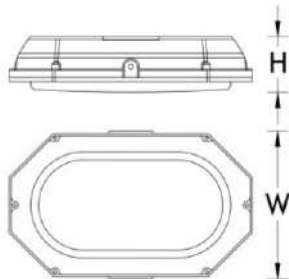


B52
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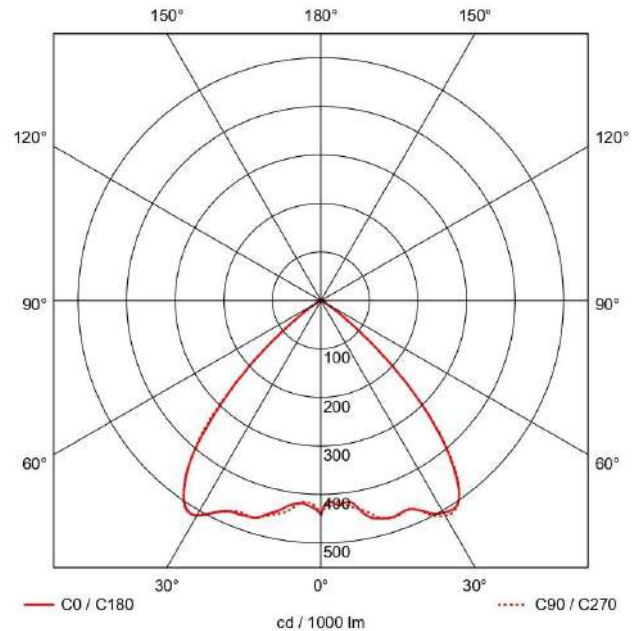
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B80
Page 142



Photometric Diagram



Luminaire Efficiency: 84%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- Tunnel
- Conveyor
- Industrial
- Security

Benefits

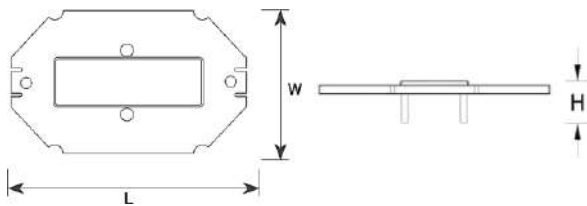
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

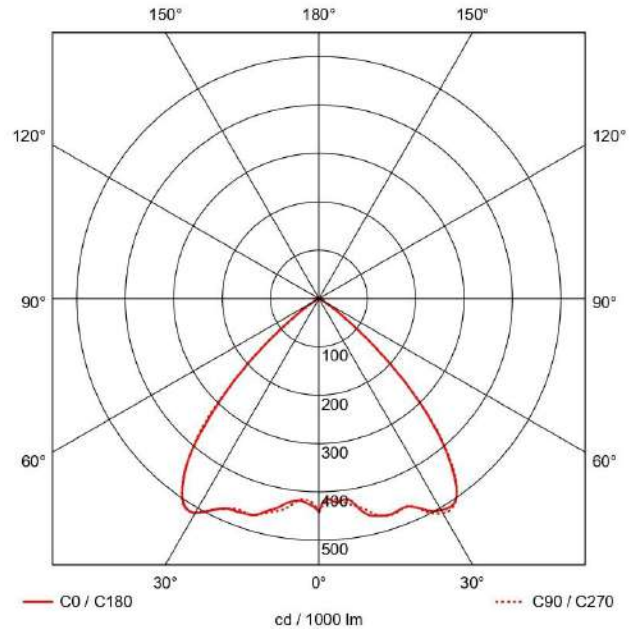
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K AND 5000K on request)
- Tridonic LED modules and driver
- Ambient temperature: -25... +80°C
- LM6 high pressure die cast aluminium body
- Clear borosilicate glass lens
- 316 stainless steel screws and heli-coils
- 3 x 20mm ø cable entry knockouts and 1 x M20 threaded gland entry
- Wide beam and narrow beam optics available
- Mounting bracket included

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
B40-34W-LED	6280	38W	0.95	500mA	410mm	271mm	120mm	4kg
B40-50W-LED	8536	53W	0.95	700mA	410mm	271mm	120mm	4kg





Photometric Diagram



Luminaire Efficiency: 84%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- Tunnel
- Industrial
- Conveyor
- Security

Benefits

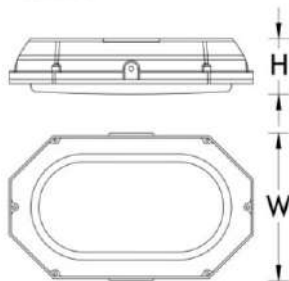
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

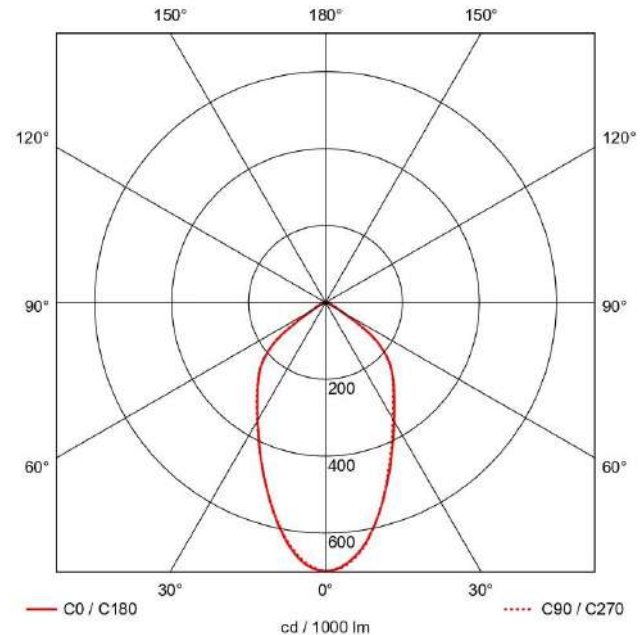
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Tridonic LED modules and driver
- Ambient temperature: -25... +80°C
- Borosilicate clear tempered glass or polycarbonate cover available (ordered separately)
- Designed to be retrofitted in existing B40 luminaires
- Replacement luminaire glass or polycarbonate lens available as optional extra
- Wide beam and narrow beam optics available

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
B40-RETRO-34W-LED	6280	38W	0.95	500mA	384mm	245mm	50mm	0.3kg
B40-RETRO-50W-LED	8536	53W	0.95	700mA	384mm	245mm	50mm	0.3kg





Photometric Diagram



Luminaire Efficiency: 84%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- Tunnel
- Conveyor
- Industrial
- Security

Benefits

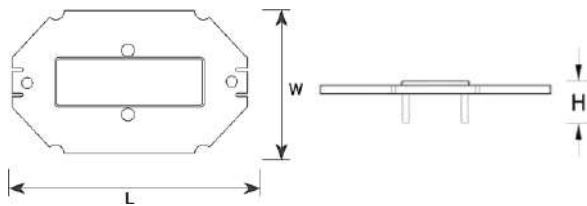
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

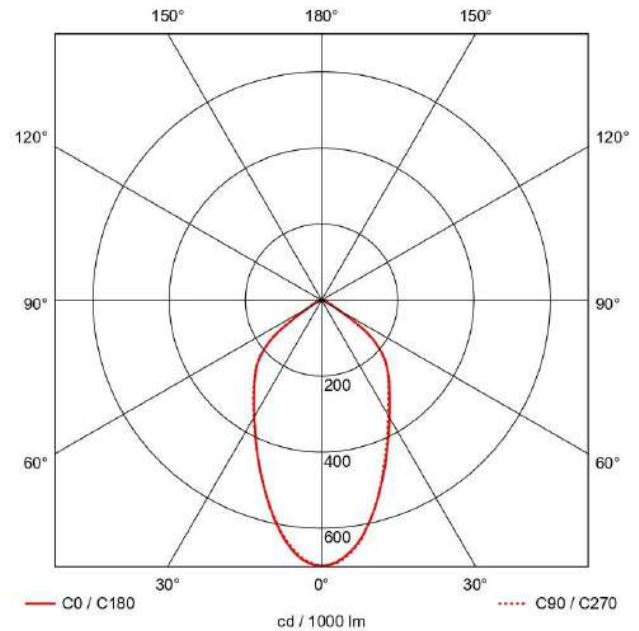
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K AND 5000K on request)
- Tridonic LED modules and driver
- Ambient temperature: -25... +80°C
- LM6 high pressure die cast aluminium body
- Clear borosilicate glass lens
- 316 stainless steel screws and heli-coils
- 3 x 20mm ø cable entry knockouts and 1 x M20 threaded gland entry
- Wide beam and narrow beam optics available
- Mounting bracket included

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
B41-34W-LED	6280	38W	0.95	500mA	410mm	271mm	120mm	4kg
B41-50W-LED	8536	53W	0.95	700mA	410mm	271mm	120mm	4kg





Photometric Diagram



Luminaire Efficiency: 84%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- Tunnel
- Industrial
- Conveyor
- Security

Benefits

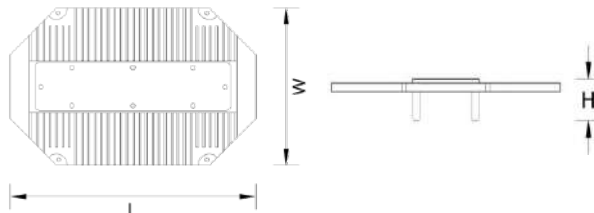
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

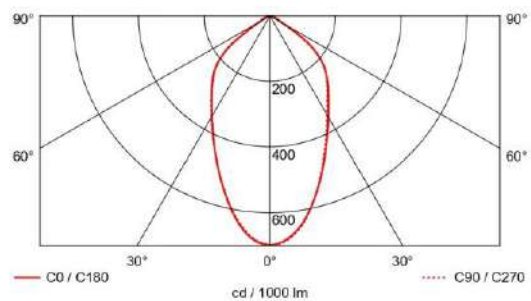
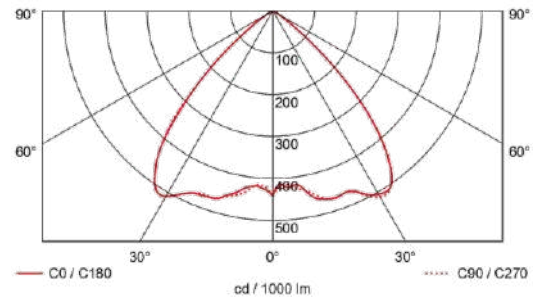
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Tridonic LED modules and driver
- Ambient temperature: -25... +80°C
- Borosilicate clear tempered glass or polycarbonate cover available (ordered separately)
- Designed to be retrofitted in existing B41 luminaires
- Replacement luminaire glass or polycarbonate lens available as optional extra
- Wide beam and narrow beam optics available

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
B41-RETRO-34W-LED	6280	38W	0.95	500mA	384mm	245mm	50mm	0.3kg
B41-RETRO-50W-LED	8536	53W	0.95	700mA	384mm	245mm	50mm	0.3kg





Photometric Diagram



Luminaire Efficiency: 90%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- Tunnel
- Conveyor
- Industrial
- Security

Benefits

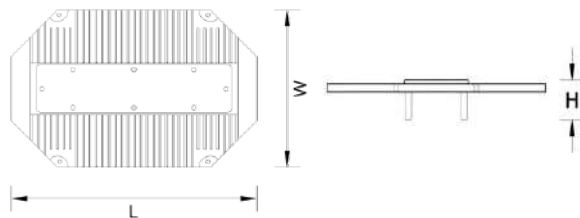
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

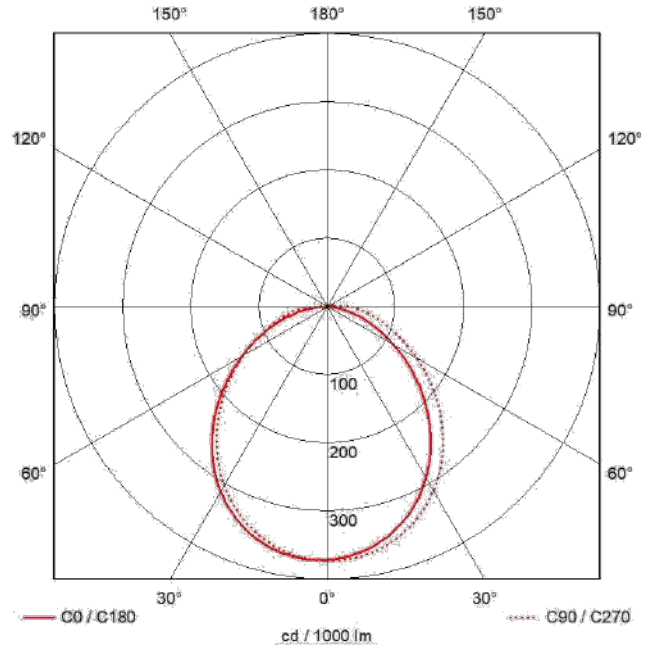
- IP65 external retrofit plate
- Designed to be used on existing B40 luminaires without luminaire lens
- Uses existing lens screws
- LM6 aluminium plate
- High Colour Rendering Index CRI > 80
- Colour temperature 4000K (3000K and 5000K available on request)
- Vossloh Schwabe or Tridonic LED Modules and Driver
- Ambient temperature: -25....+65°C
- Wide beam and narrow beam optics available

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
B40-PLATE-C-WB-75W-LED	11249	82.5W	0.98	325mA	385mm	245mm	50mm	4.35kg
B40-PLATE-C-NB-75W-LED	11249	82.5W	0.98	325mA	385mm	245mm	50mm	4.35kg





Photometric Diagram



Luminaire Efficiency: 70%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L80 F10, TP 45°C)

Application

- Tunnel
- Conveyor
- Industrial
- Security

Benefits

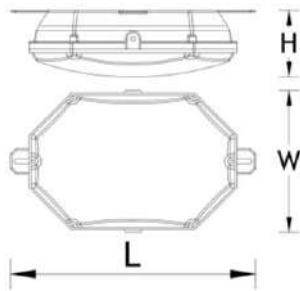
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

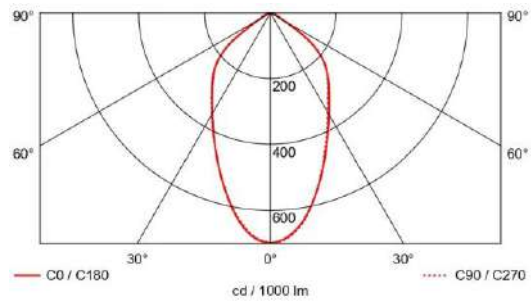
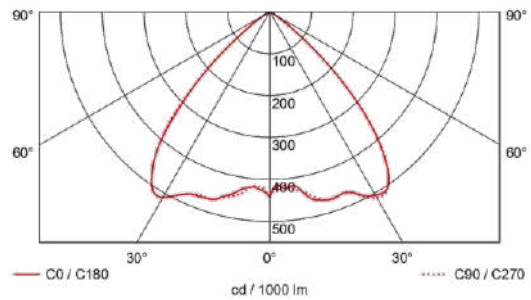
- IP65 external retrofit plate
- Designed to be used in existing B40 luminaires without luminaire lens
- Uses existing lens screws
- LM6 aluminium plate
- High Colour Rendering Index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- LED Modules and Driver
- Ambient temperature: -25....+65°C
- Low glare makrolon polycarbonate lens

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
B40-PLATE-LG-50W-LED	7648	55W	0.95	225mA	385mm	245mm	50mm	4.35kg
B40-PLATE-LG-67W-LED	10273	73.7W	0.95	288mA	385mm	245mm	50mm	4.35kg
B40-PLATE-LG-75W-LED	10308	82.5W	0.95	330mA	385mm	245mm	50mm	4.35kg
B40-PLATE-LG-98W-LED	16839	106.7W	0.95	420mA	385mm	245mm	50mm	4.35kg





Photometric Diagram



Luminaire Efficiency: 84%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- Tunnel
- Conveyor
- Industrial
- Security

Benefits

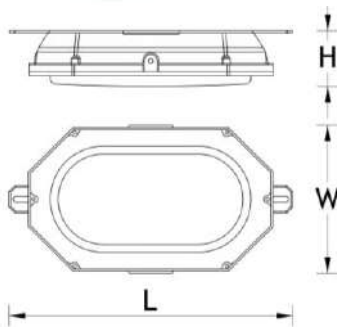
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

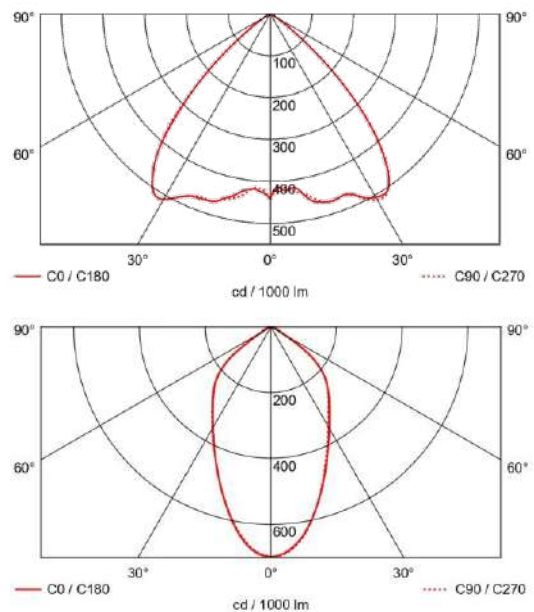
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Vossloh Schwabe main voltage (220-240V) LED module
- Ambient temperature: -25... +80°C
- LM6 high pressure die cast aluminium body
- Chemically treated epoxy powder coated
- Polycarbonate diffuser
- 316 stainless steel screws and heli-coils
- 3 x 20mm ø cable entry knockouts and 1 x M20 threaded gland entry
- Wide beam and narrow beam optics available
- Other mounting brackets available (ordered separately)

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
B42-34W-WB-LED	5700	36.5W	0.95	500mA	410mm	271mm	132mm	3.5kg
B42-34W-NB-LED	5700	36.5W	0.95	500mA	410mm	271mm	132mm	3.5kg
B42-46W-WB-LED	7825	50W	0.95	700mA	410mm	271mm	132mm	3.5kg
B42-46W-NB-LED	7825	50W	0.95	700mA	410mm	271mm	132mm	3.5kg
B42-71.5W-WB-LED	11335	77W	0.95	1050mA	410mm	271mm	132mm	3.5kg
B42-71.5W-NB-LED	11335	77W	0.95	1050mA	410mm	271mm	132mm	3.5kg





Photometric Diagram



Luminaire Efficiency: 84%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- Tunnel
- Industrial
- Conveyor
- Security

Benefits

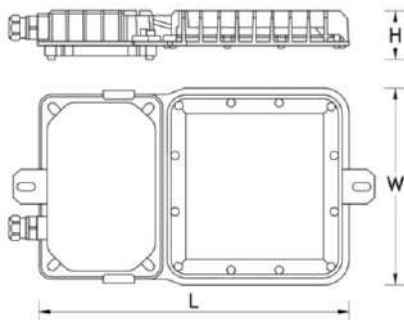
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

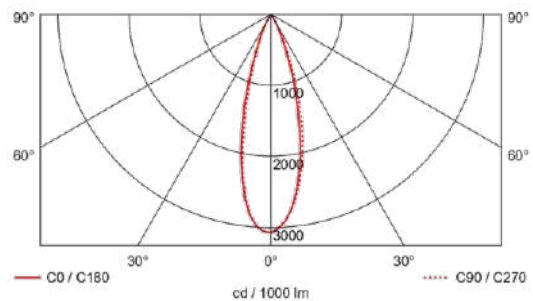
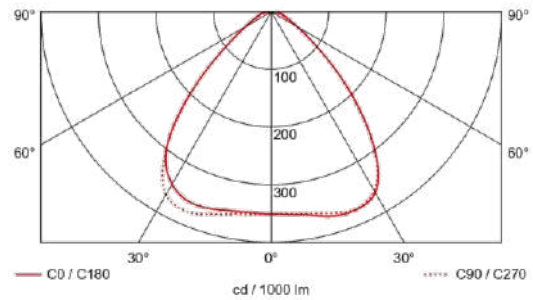
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Vossloh Schwabe main voltage (220-240V) LED module
- Ambient temperature: -25... +80°C
- LM6 high pressure die cast aluminium body
- Chemically treated epoxy powder coated
- Borosilicate glass lens
- 316 stainless steel screws and heli-coils
- 3 x 20mm ø cable entry knockouts and 1 x M20 threaded gland entry
- Other mounting brackets available (ordered separately)

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
B52-34W-WB-LED	5700	36.5W	0.95	500mA	410mm	271mm	120mm	3.5kg
B52-34W-NB-LED	5700	36.5W	0.95	500mA	410mm	271mm	120mm	3.5kg
B52-46W-WB-LED	7825	50W	0.95	700mA	410mm	271mm	120mm	3.5kg
B52-46W-NB-LED	7825	50W	0.95	700mA	410mm	271mm	120mm	3.5kg
B52-71.5W-WB-LED	11335	77W	0.95	1050mA	410mm	271mm	120mm	3.5kg
B52-71.5W-NB-LED	11335	77W	0.95	1050mA	410mm	271mm	120mm	3.5kg





Photometric Diagram



Luminaire Efficiency: 82%

Life/ Maintenance

- LED Driver Average Rated Life 100 000hrs
- LED Life 54 000hrs (L80 F10, TP 45°C)

Application

- Tunnel
- Industrial
- Conveyor
- Security

Benefits

- **5 Year warranty**
- Built-in surge Protection

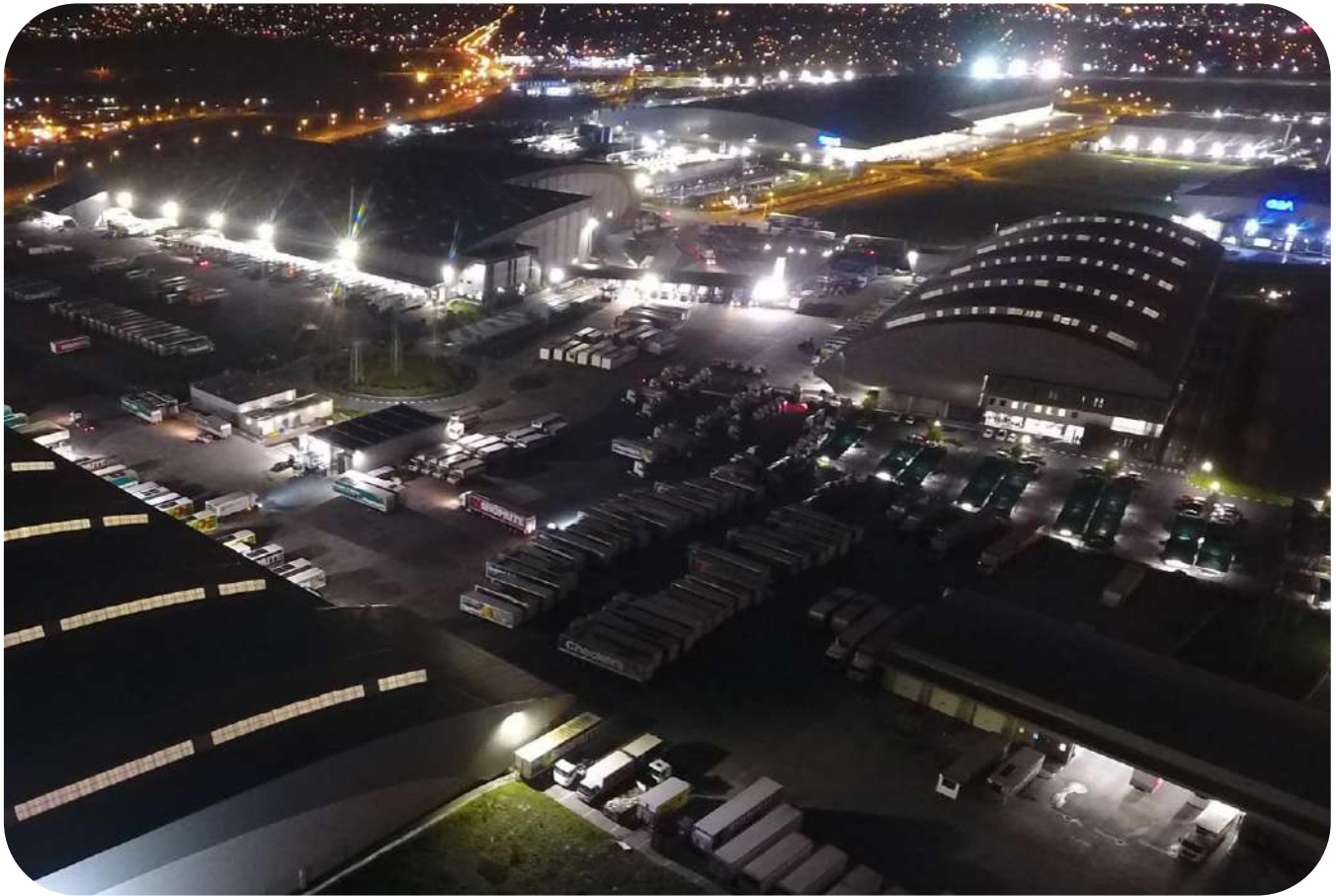
Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Vossloh Schwabe LED modules and driver
- Ambient temperature: -25... +85°C
- LM6 high pressure die cast aluminium body
- Clear heat tempered glass lens
- 316 stainless steel screws and heli-coils
- 316 stainless steel external fasteners
- Mounting lugs included (stirrup can be ordered separately)
- Available in Zone 2, 21 and 22 (P80)
- Multiple optical options available to suit design requirements

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
B80-35W-WB/NB-LED	6030	38.5W	0.96	350mA	465mm	282mm	65mm	6.5kg
B80-50W-WB/NB-LED	8850	55W	0.96	500mA	465mm	282mm	65mm	6.5kg
B80-72W-WB/NB-LED	12150	79.2W	0.96	700mA	465mm	282mm	65mm	6.5kg
B80-100W-WB/NB-LED	16470	121W	0.96	1050mA	465mm	282mm	65mm	6.5kg



FLOODLIGHTS AND AREA LUMINAIRES



LED



L10
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LED



L16
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LED



L18
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LED



L24 - D
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LED



L24 - T
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LED



L24 - Q
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LED



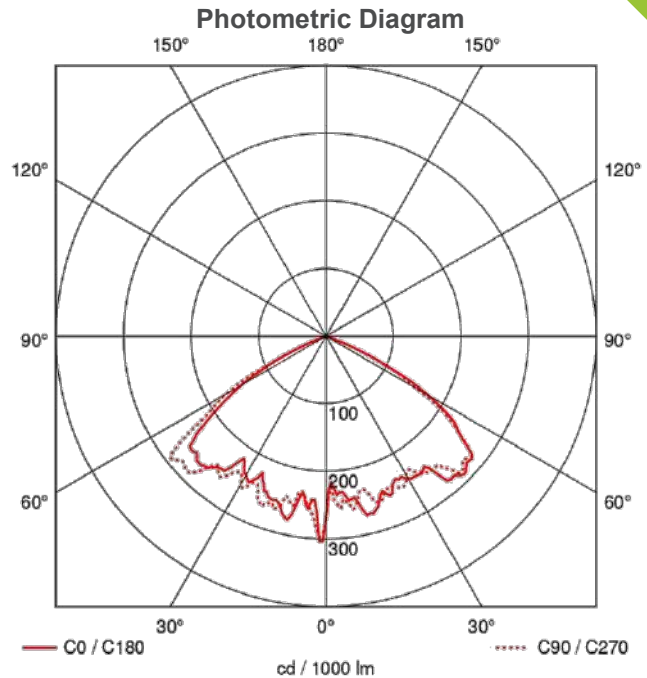
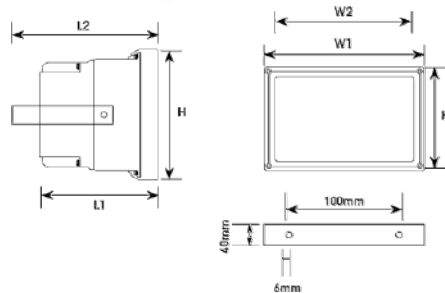
L80
Page 151

LED



LUCCA
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LASCON® L10 FLOODLIGHT



Luminaire Efficiency: 84.2%

Life/ Maintenance

- LED Driver Average Rated Life 100 000hrs
- LED Life 54 000hrs (L80 F10, TP 45°C)

Application

- Signage
- Architectural Lighting
- Perimeter
- Security

Benefits

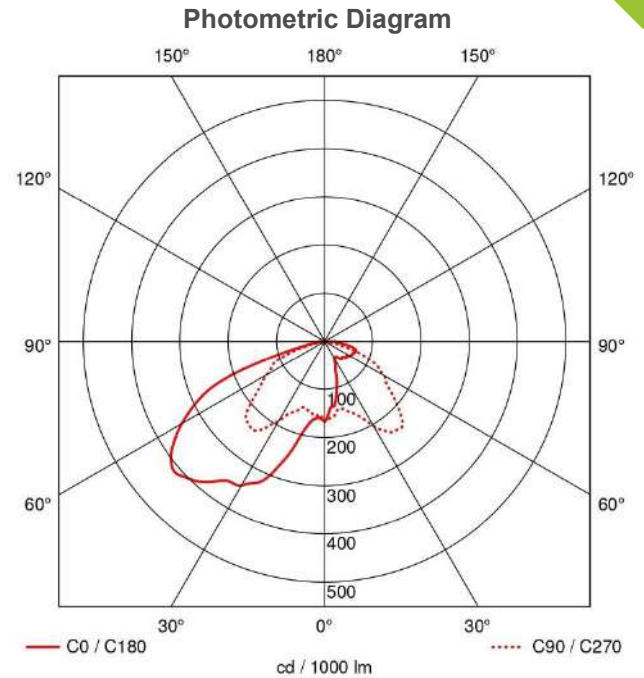
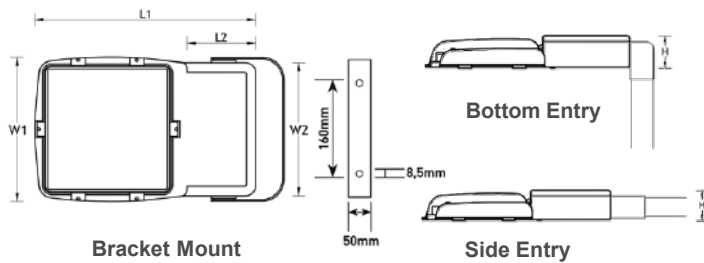
- 5 Year warranty
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K available on request)
- Small colour tolerance – MacAdam 3
- Vossloh Schwabe main LED module and driver
- LM6 marine grade chemically treated and epoxy powder coated aluminium body
- Heat tempered front glass lens
- 316 stainless steel screws and heli-coils
- 316 stainless steel fasteners
- Available in architectural colours

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions					Weight
					L1	L2	W1	W2	H	
L10-34W-LED	4444	36.5W	0.95	700mA	158mm	215mm	280mm	265mm	180mm	3.9kg
L10-50W-LED	5987	54W	0.95	900mA	158mm	215mm	280mm	265mm	180mm	3.9kg





Luminaire Efficiency: 81.7%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- General Floodlighting
- Security and Parameter
- Sports Field Lighting
- Area Lighting

Benefits

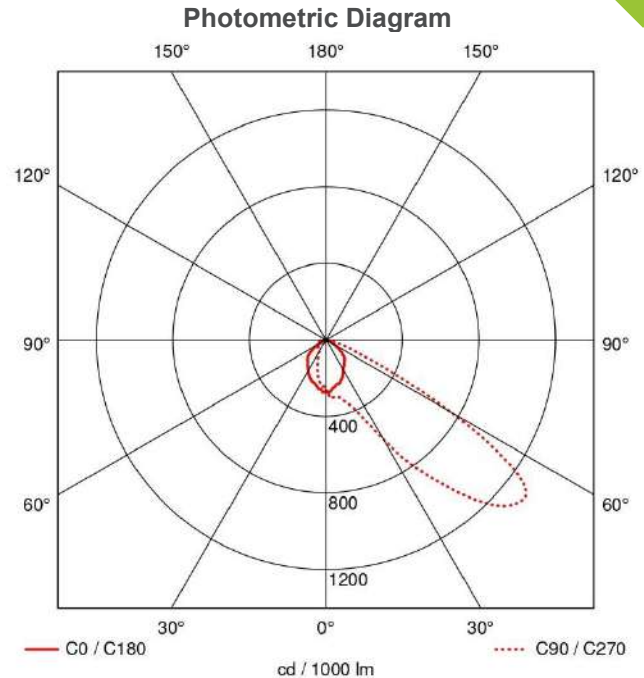
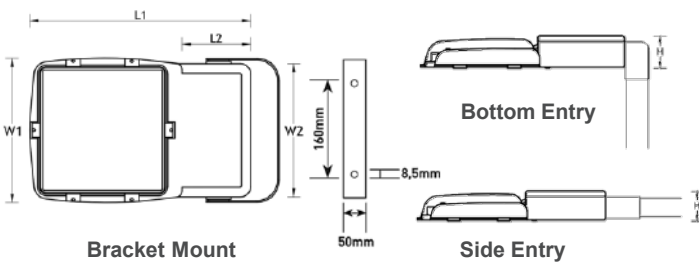
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K available on request)
- Vossloh Schwabe LED modules and driver
- LM6 die cast chemically treated epoxy powder coated aluminium body
- Heat tempered glass lens (polycarbonate lens available on request)
- Hot dipped galvanized stirrup
- 316 stainless steel screws and heli-coils
- 316 stainless steel fasteners
- Available with 42mm side entry or 76mm bottom entry LM6 spigot (to be ordered separately)
- Multiple optical options available to suit design requirement

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions					Weight
					L1	L2	W1	W2	H	
L16-125W-LED	21560	139.8W	0.95	700mA	467mm	143mm	306mm	281mm	65mm	6.5kg
L16-160W-LED	24800	179.2W	0.95	800mA	467mm	143mm	306mm	281mm	65mm	6.5kg
L16-200W-LED	30700	220.6W	0.95	1050mA	467mm	143mm	306mm	281mm	65mm	6.5kg





Luminaire Efficiency: 81.7%

Life/ Maintenance

- LED Driver Average Rated Life 100 000hrs
- LED Life 54 000hrs (L80 F10, TP 45°C)

Application

- General Floodlighting
- Security and Parameter
- Sports Field Lighting
- Area Lighting

Benefits

- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10kV available)

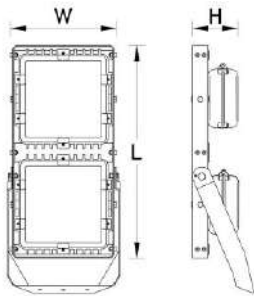
Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K available on request)
- Vossloh Schwabe LED modules and driver
- LM6 die cast chemically treated epoxy powder coated aluminium body
- Heat tempered glass lens (polycarbonate lens available on request)
- Hot dipped galvanized stirrup
- 316 stainless steel screws and heli-coils
- 316 stainless steel fasteners
- Available with 42mm side entry or 76mm bottom entry LM6 spigot (to be ordered separately)
- Multiple optical options available to suit design requirement

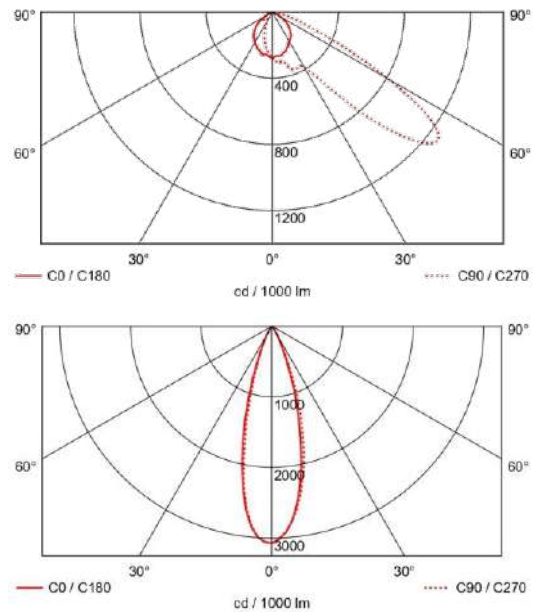
Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions					Weight
					L1	L2	W1	W2	H	
L18-125W-LED	21560	139.8W	0.95	700mA	467mm	143mm	306mm	281mm	65mm	6.5kg
L18-160W-LED	24800	179.2W	0.95	800mA	467mm	143mm	306mm	281mm	65mm	6.5kg
L18-200W-LED	30700	220.6W	0.95	1050mA	467mm	143mm	306mm	281mm	65mm	6.5kg



LASCON[®] L24-D FLOODLIGHT LED



Photometric Diagram



Luminaire Efficiency: 81.7%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- General Floodlight
- Security and Security
- Sports Field Lighting
- Area Lighting

Benefits

- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10KV available)

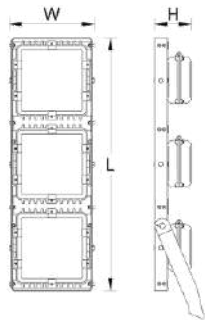
Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K available on request)
- Vossloh Schwabe LED modules and driver
- LM6 die cast aluminium body
- 316 stainless steel screws and heli-coils
- 316 stainless steel fasteners
- Galvanized mounting stirrup bracket
- Designed to use Ledil Strada optic range
- Designs not limited to published optics
- Aiming protractor
- Multiple optical options available to suit design requirement

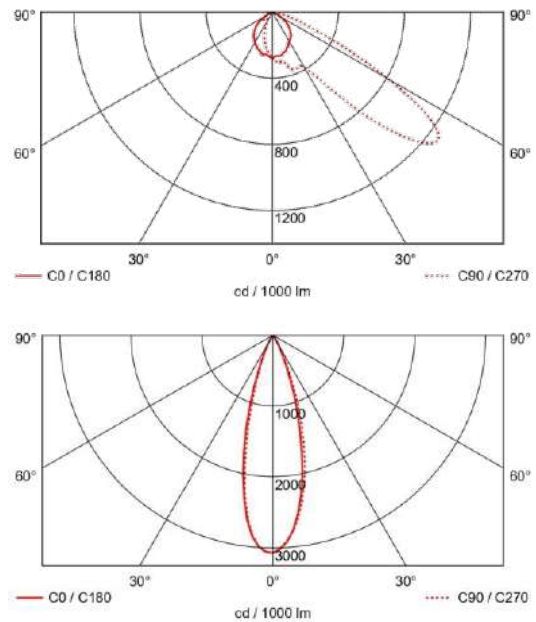
Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
L24-D-400W-LED	61400	441.2W	0.95	2 x 1050mA	676mm	323mm	146mm	13kg



LASCON® L24-T FLOODLIGHT LED



Photometric Diagram



Luminaire Efficiency: 81.7%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- General Floodlight
- Security and Security
- Sports Field Lighting
- Area Lighting

Benefits

- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10KV available)

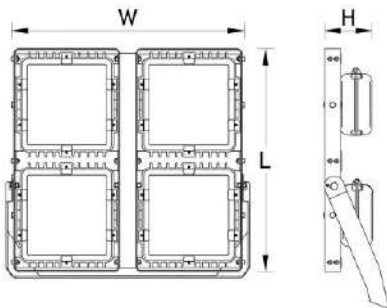
Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K available on request)
- Vossloh Schwabe LED modules and driver
- LM6 die cast aluminium body
- 316 stainless steel screws and heli-coils
- 316 stainless steel fasteners
- Galvanized mounting stirrup bracket
- Designed to use Ledil Strada optic range
- Designs not limited to published optics
- Aiming protractor
- Multiple optical options available to suit design requirement

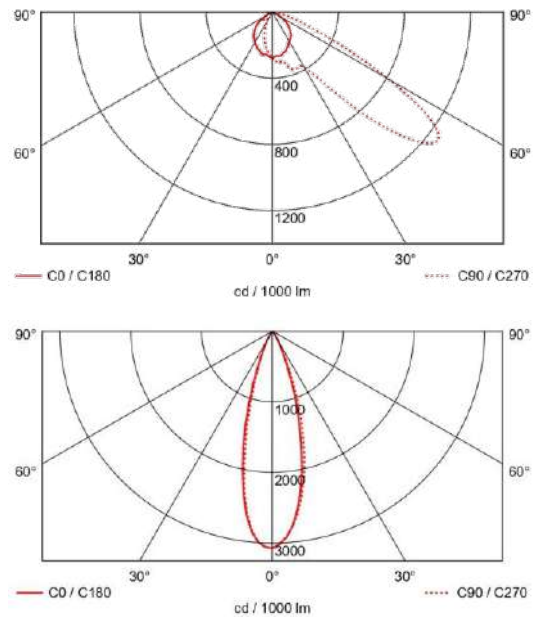
Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
L24-T-600W-LED	92100	661.8W	0.95	3 x 1050mA	1007mm	323mm	146mm	19.5kg



LASCON® L24-Q FLOODLIGHT LED



Photometric Diagram



Luminaire Efficiency: 81.7%

Life/ Maintenance

• LED Driver Average Rated Life	100 000hrs
• LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- General Floodlight
- Security and Security
- Sports Field Lighting
- Area Lighting

Benefits

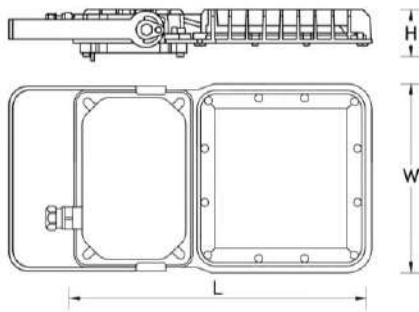
- **5 Year warranty**
- Built-in surge Protection (optional extra 10kA/10KV available)

Product Features and Accessories

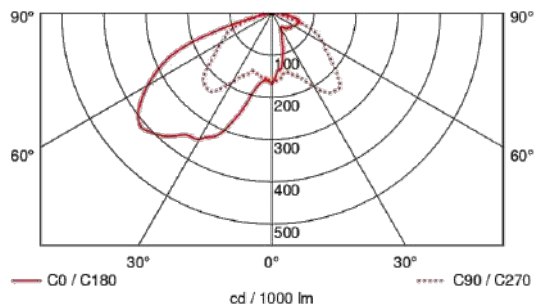
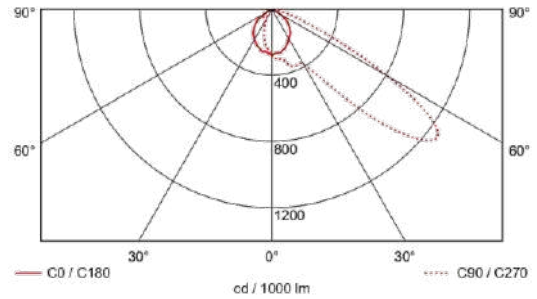
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K available on request)
- Vossloh Schwabe LED modules and driver
- LM6 die cast aluminium body
- 316 stainless steel screws and heli-coils
- 316 stainless steel fasteners
- Galvanized mounting stirrup bracket
- Designed to use Ledil Strada optic range
- Designs not limited to published optics
- Aiming protractor
- Multiple optical options available to suit design requirement

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
L24-Q-800W-LED	122800	882.4W	0.95	4 x 1050mA	676mm	696mm	146mm	26kg





Photometric Diagram



Luminaire Efficiency: 82%

Life/ Maintenance

- LED Driver Average Rated Life 100 000hrs
- LED Life 54 000hrs (L80 F10, TP 45°C)

Application

- General Floodlighting
- Area
- Sports Field Lighting
- Security

Benefits

- **5 Year warranty**
- Built-in surge Protection

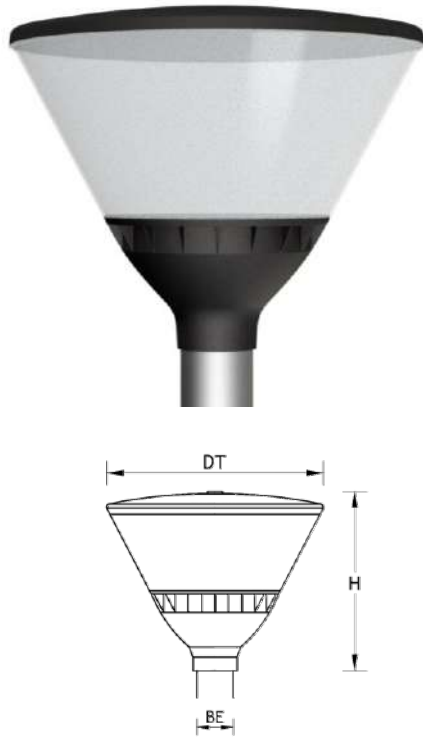
Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Vossloh Schwabe or Tridonic LED modules and driver
- Ambient temperature: -25... +85°C
- LM6 high pressure die cast aluminium body
- Hot dipped galvanized stirrup
- Clear heat tempered glass lens
- 316 stainless steel screws and heli-coils
- 316 stainless external fasteners
- Available in Zone 2, 21 and 22 (P80)
- Multiple optical options available to suit design requirement

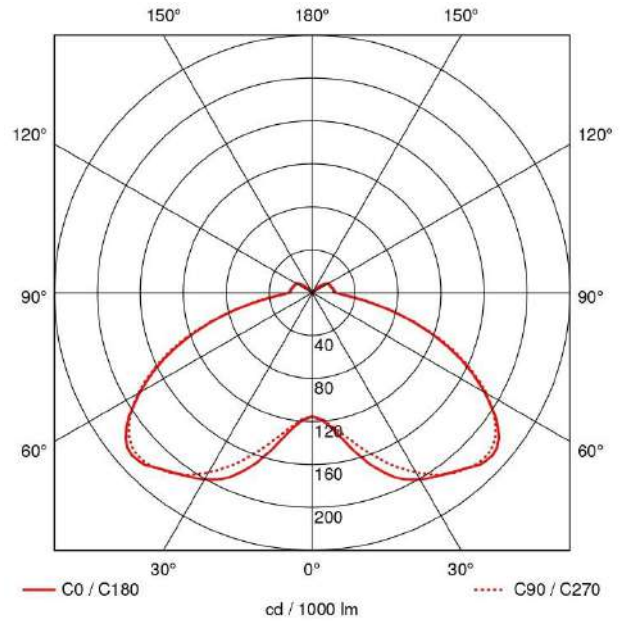
Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
L80-35W-LED	6030	38.5W	0.96	350mA	465mm	282mm	65mm	6.5kg
L80-50W-LED	8850	55W	0.96	500mA	465mm	282mm	65mm	6.5kg
L80-72W-LED	12150	79.2W	0.96	700mA	465mm	282mm	65mm	6.5kg
L80-100W-LED	16470	121W	0.96	1050mA	465mm	282mm	65mm	6.5kg



LASCON[®] LUCCA POST TOP LED



Photometric Diagram



Luminaire Efficiency: 84%

Life/ Maintenance

LED Driver Average Rated Life	100 000hrs
LED Life	54 000hrs (L80 F10, TP 45°C)

Application

- Parking Areas
- Malls
- Shopping Malls
- Parks

Benefits

- 5 Year warranty
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K available on request)
- Small colour tolerance – MacAdam 3
- LM6 marine grade aluminium powder coated RAL 7035
- Polycarbonate diffuser
- Polycarbonate lid
- Totally enclosed no entry from the lid, entry only from the base of the spigot
- Available in black

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					Diameter Top	Bottom Entry	H	
LUCCA-32W-LED	6000	35.2W	0.98	350mA	460mm	76mm	400mm	4.75kg
LUCCA-45W-LED	8000	50W	0.98	500mA	460mm	76mm	400mm	4.75kg



MINE LUMINAIRES



LED



VML
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LED

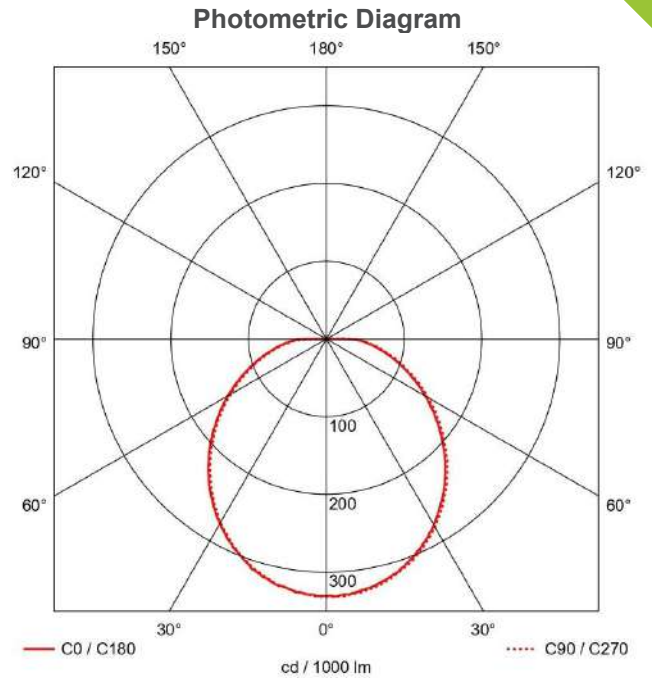
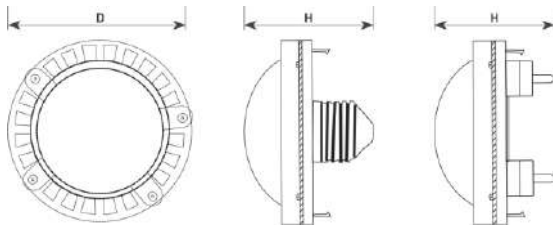


VML-L
Page 156

LED



VML-C2
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Luminaire Efficiency: 77%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L70 F10, TP 65°C)

Application

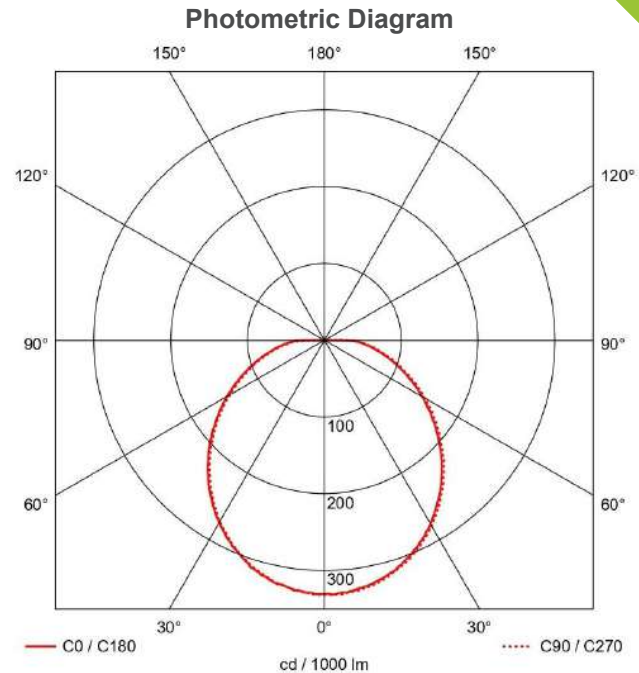
- Underground Tunnels
- Mining Workshops
- Underground Haulage

Product Features and Accessories

- Patented design for “plug and play” into the VML lamp holder
- Non-conductive and non-toxic polycarbonate body
- Impact resistant makrolon polycarbonate diffuser
- Rugged LED PC board for mining installations
- Compliant according to both local and international standards
- Compact and lightweight
- NI connection box cable ordered separately
- Available in NI patented 2 pin clip in system
- VML lamp holders ordered separately
- Available in E27 anti-tamper system (tool required for installation and removal)
- Available as 110V or 230V configuration
- Anti-tamper ES base and tool available

Specification	Lumen @ 25°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
VML-7W-LED/ES-110V	770	7.7W	0.85	60mA	68.1mm	124mm	0.3kg
VML-7W-LED/ES-230V	770	7.7W	0.85	30mA	68.1mm	124mm	0.3kg
VML-7W-LED/NI-110V	770	7.7W	0.85	60mA	68.1mm	124mm	0.3kg
VML-7W-LED/NI-230V	770	7.7W	0.85	30mA	68.1mm	124mm	0.3kg
VML-7W-LED/ES-AT-110V	770	7.7W	0.85	60mA	68.1mm	124mm	0.3kg
VML-7W-LED/ES-AT-230V	770	7.7W	0.85	30mA	68.1mm	124mm	0.3kg





Luminaire Efficiency: 75%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L70 F10, TP 65°C)

Application

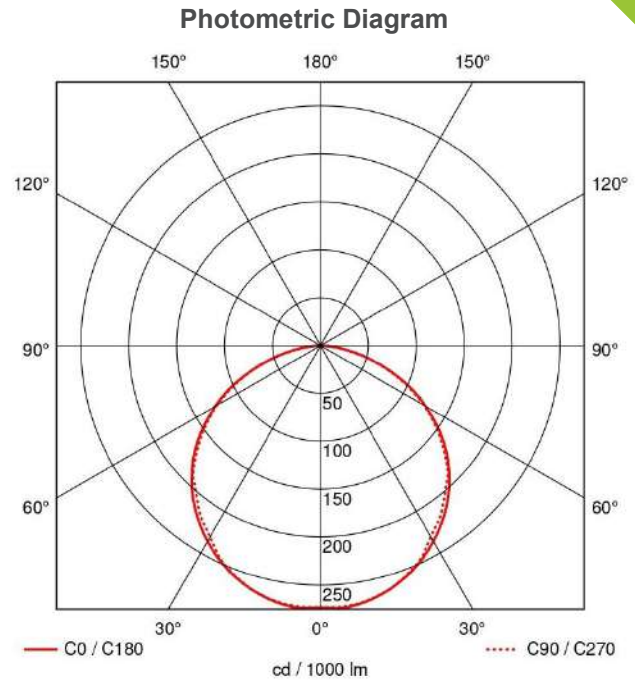
- Underground Tunnels
- Mining Workshops
- Underground Haulage

Product Features and Accessories

- Patented design for “plug and play” into the VML lamp holder
- Non-conductive and non-toxic polycarbonate body
- Impact resistant makrolon polycarbonate diffuser
- Rugged LED PC board for mining installations
- Compliant according to both local and international standards
- Compact and lightweight
- NI connection box for cable ordered separately
- Available in NI patented 2 pin clip in system
- VML lamp holders ordered separately
- Available in fixed E27 anti-tamper system (tool required for installation and removal)
- Available as 110V or 230V configuration
- Anti-tamper ES base and tool available

Specification	Lumen @ 25°C	System Power	Power Factor	Current	Dimensions		Weight
					D	H	
VML-L-20W-LED/ES-110V	2990	22W	0.85	190mA	240mm	124mm	0.8kg
VML-L-20W-LED/ES-230V	2990	22W	0.85	90mA	240mm	124mm	0.8kg
VML-L-20W-LED/NI-110V	2990	22W	0.85	190mA	240mm	111mm	0.8kg
VML-L-20W-LED/NI-230V	2990	22W	0.85	90mA	240mm	111mm	0.8kg
VML-L-20W-LED/ES-AT-110V	2990	22W	0.85	190mA	240mm	124mm	0.8kg
VML-L-20W-LED/ES-AT-230V	2990	22W	0.85	90mA	240mm	124mm	0.8kg





Luminaire Efficiency: 76%

Life/ Maintenance

• LED Driver Average Rated Life	50 000hrs
• LED Life	50 000hrs (L70 F10, TP 65°C)

Application

- Underground Tunnels
- Industrial Lighting
- Parking Garages
- Mining Workshops

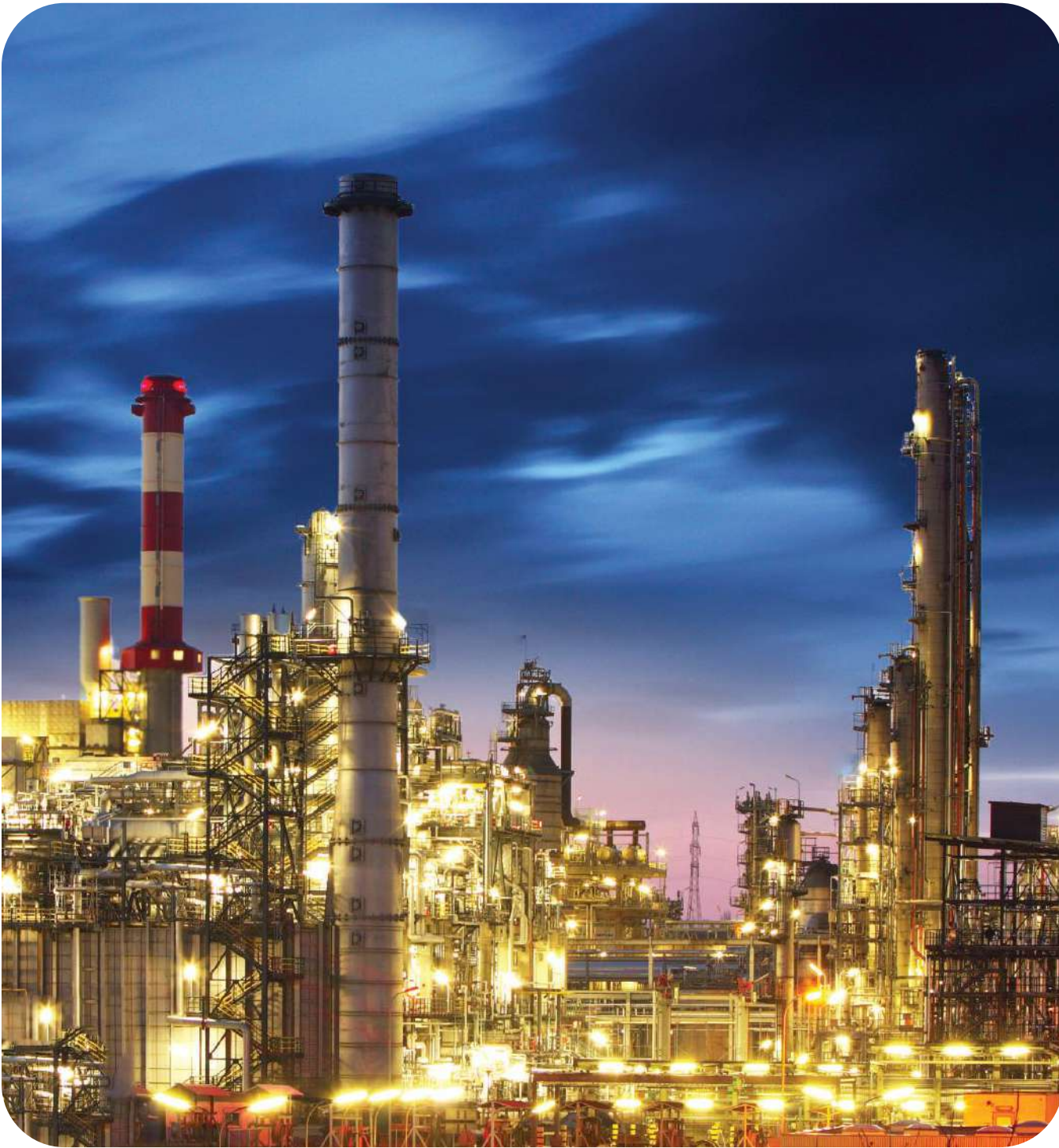
Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 6500K on request)
- Small colour tolerance – MacAdam 3
- Tridonic LED module and driver
- Ambient temperature: -30... +45°C
- Designed for “plug and play” into VML lamp holder
- Two anti-tamper stainless steel clips included
- Glass reinforced polyester (GRP) body
- NI connection box for cable ordered separately
- Injected polycarbonate diffuser with linear control prisms
- 230V and 110V versions available

Specification	Lumen @ 65°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
VML-C2-19W-LED	2990	20.1W	0.98	400mA	665mm	134mm	98mm	1.7kg



ZONED LUMINAIRES



LED



P80
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LED

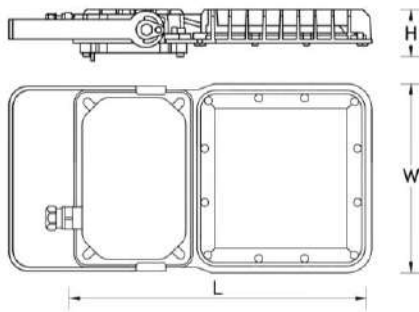


GRP LINEAR
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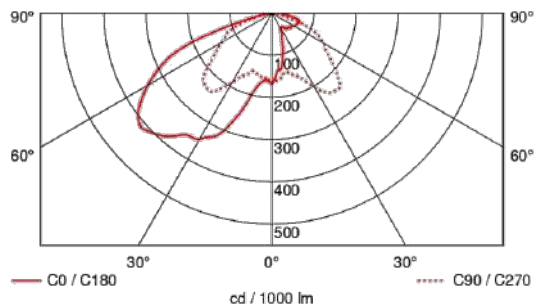
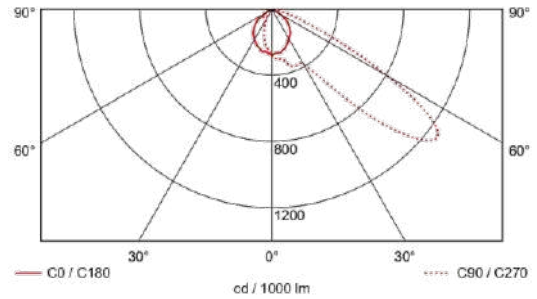
LED



SS LINEAR
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Photometric Diagram



Luminaire Efficiency: 82%

Life/ Maintenance

- LED Driver Average Rated Life 100 000hrs
- LED Life 54 000hrs (L80 F10, TP 45°C)

Application

- General Floodlighting
- Area
- Sports Field Lighting
- Security

Benefits

- **5 Year warranty**
- Built-in surge Protection

Product Features and Accessories

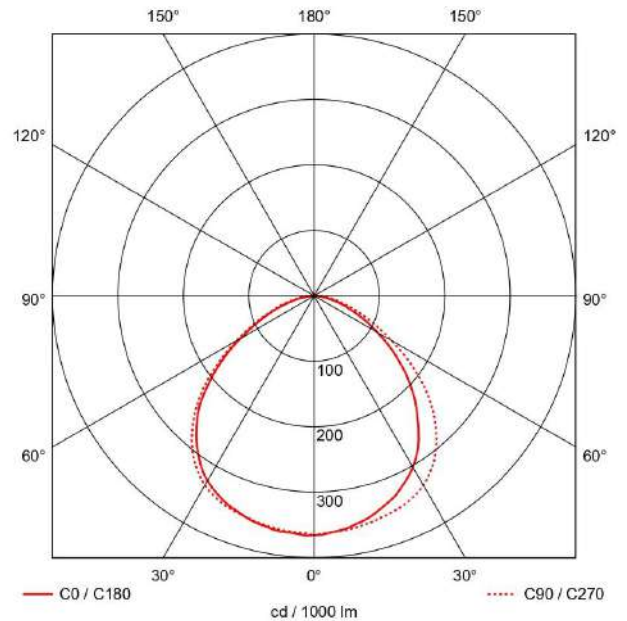
- High colour rendering index CRI > 80
- Colour temperature 4000K (3000K and 5000K on request)
- Vossloh Schwabe or Tridonic LED modules and driver
- Ambient temperature: -25... +85°C
- LM6 high pressure die cast aluminium body
- Hot dipped galvanized stirrup
- Clear heat tempered glass lens
- 316 stainless steel screws and heli-coils
- 316 stainless external fasteners
- Available as a standard IP rated or certified Ex n and Ex t for use in Zone 2, 21/22 hazardous areas.

Specification	Lumen @ 45°C	System Power	Power Factor	Current	Dimensions			Weight
					L	W	H	
P80-50W-LED	8850	55W	0.96	500mA	465mm	282mm	65mm	6.5kg
P80-80W-LED	13500	88W	0.96	750mA	465mm	282mm	65mm	6.5kg
P80-100W-LED	16470	121W	0.96	1050mA	465mm	282mm	65mm	6.5kg





Photometric Diagram



Luminaire Efficiency: 93%

Life/ Maintenance

• LED Driver Average Rated Life	150 000hrs
• LED Life	150 000hrs (L70 F10, TP 65°C)

Application

- Classified Zoned Areas
- Battery Bays
- Petrochemical plants

Benefits

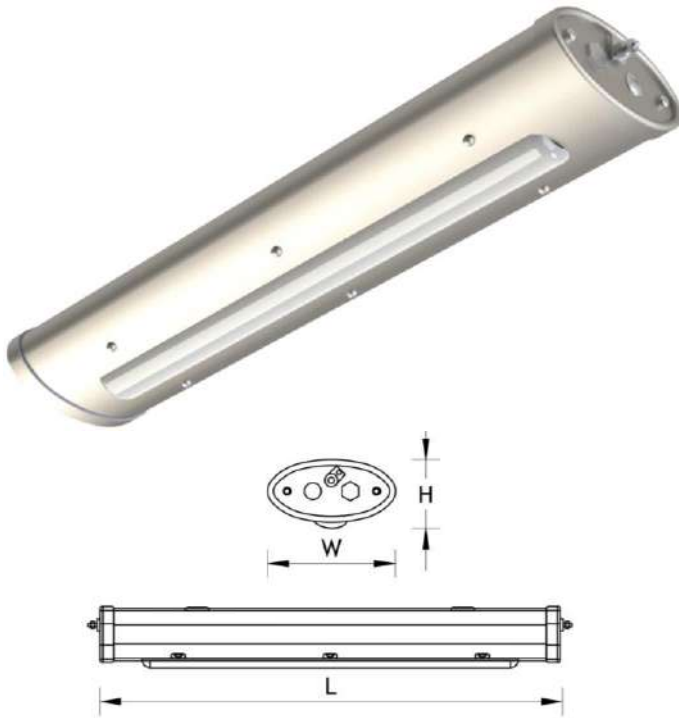
- **10 Year warranty**
- Built-in surge protection

Product Features and Accessories

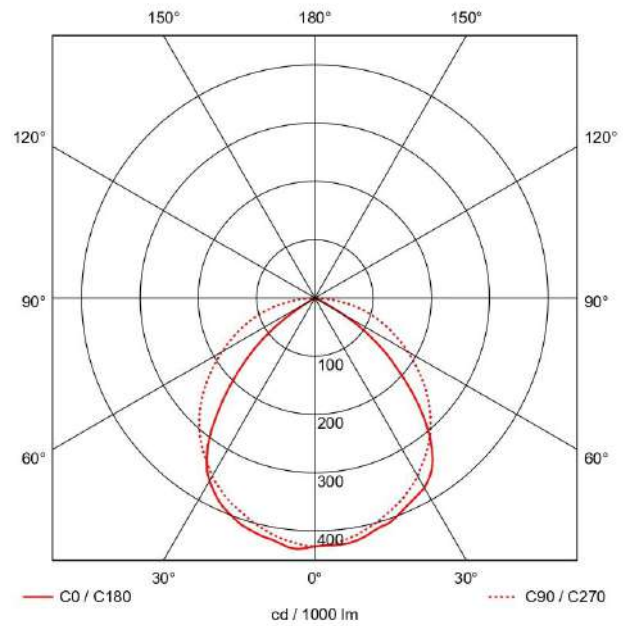
- High colour rendering index CRI > 80
- Colour temperature 5000K (4000K on request)
- IEC Ex / ATEX Zones 2, 21 and 22
- Glass-reinforced polyester housing
- Textured polycarbonate convex lens (Textured flat glass lens available on request)
- Various mounting options available
- Available in emergency units
- Green safe shower LED luminaire available
- 100VAC to 250VAC

Specification	Lumen @ 25°C	System Power	Power Factor	Dimensions			Weight
				L	W	H	
P2-GRP-LINEAR-25W-LED	2875	27.5W	0.9	764mm	222mm	112mm	7.7kg
P4-GRP-LINEAR-47W-LED	5750	51.7W	0.9	1244mm	197mm	119mm	10.9kg





Photometric Diagram



Luminaire Efficiency: 94%

Life/ Maintenance

- LED Driver Average Rated Life 150 000hrs
- LED Life 150 000hrs (L70 F10, TP 25°C)

Application

- Underground Tunnels
- Mining Workshops

Benefits

- **10 Year warranty**
- Built-in surge Protection

Product Features and Accessories

- High colour rendering index CRI > 80
- Colour temperature 5000K (4000K on request)
- Ambient temperature: -20... +60°C
- 316 Marine grade stainless steel housing
- High impact resistant polycarbonate lens
- IEC Ex / ATEX Zones 2, 21 and 22
- Various mounting options available
- Available in emergency units
- Green safe shower LED luminaire available
- 100VAC to 277VAC

Specification	Lumen @ 25°C	System Power	Power Factor	Dimensions			Weight
				L	W	H	
SAB-LINEAR-34W-LED	2500	37W	0.9	708mm	170mm	97mm	6.8kg
SBB-LINEAR-67W-LED	4850	73W	0.9	1308mm	170mm	97mm	11.3kg



DIGITAL CEILING SENSORS




GESH-100
VOLTAGE SENSOR
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TECHNICAL INFORMATION
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OMNI-100 / OMNI-100RP
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OMNI-150 / OMNI-150RP
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OMNI-200 / OMNI-200RP
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UVPP
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CEILING/WALL MOUNT ACCESSORIES
 Page 181



HBA WASP2
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DIGITAL LUMINAIRE SENSOR
 Page 186

GESM-LINE VOLTAGE SENSOR

Detection sensibility

Optimized for detection of pedestrians with a speed of 0.5 – 1.5 m/s corresponds to 1.8 – 5.4 km/h. Depending on the application and environmental conditions, the maximum detectable speed of object may vary.

GESM - SURFACE MOUNTED PIR MOVEMENT SENSOR

Overview

The GESM movement sensor is designed to provide automatic control of lighting, heating or ventilation loads. It detects movement using a PIR sensor and turns the load on. When an area is no longer occupied, the load will switch off after an adjustable time out period.

An adjustable internal light sensor provides additional energy saving in lighting applications. When an area is occupied, lighting is only switched on when the level of natural light falls below a preset level. When the sensor is first powered up, the PIR sensor will always detect immediately regardless of whether the room is occupied.



Features

• PIR Sensor

Detects movement within the sensor's detection range allowing load control in response to changes in occupancy.

• Light Level Sensor

Measures the overall light level in the detection area.

• LED

The red LED is used for feedback information during Setup. See Setup section on page 159.

• Power Input and Switched Output Connector

Used to connect mains power to the sensor and to connect a switched load.

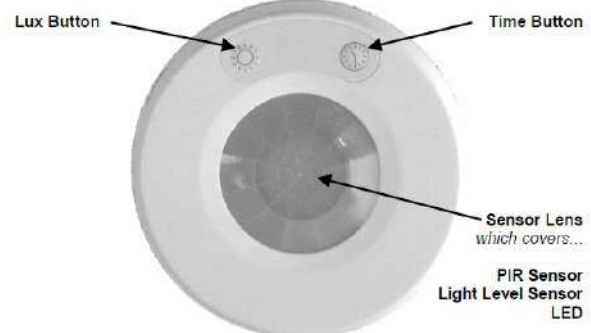
• Lux Button

Use to set the Lux level for Lux switching. See Setup section on the next page.

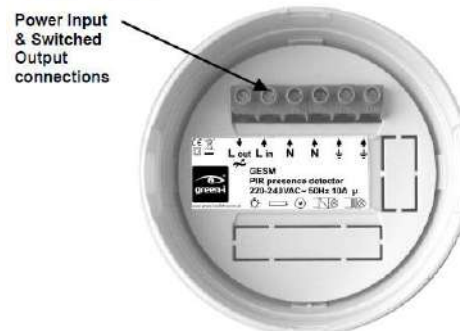
• Time Button

Use to set the time delay after which the load switches off when an area is vacated. See Setup section on the next page.

Front features



Back features



GESM-LINE VOLTAGE SENSOR

Sensor functionality

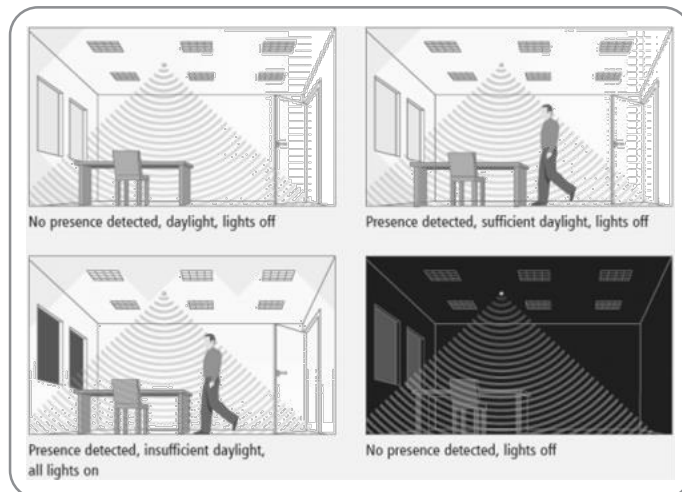
Movement detection

When movement is detected, the load will automatically turn on.

When the area is no longer occupied, the load will automatically switch off after an adjustable time period.

Lux level switching

The GESM has a built-in adjustable lux sensor which will keep the lighting switched off if there is sufficient natural light. The Lux level is set using the Lux Button on the front of the sensor.

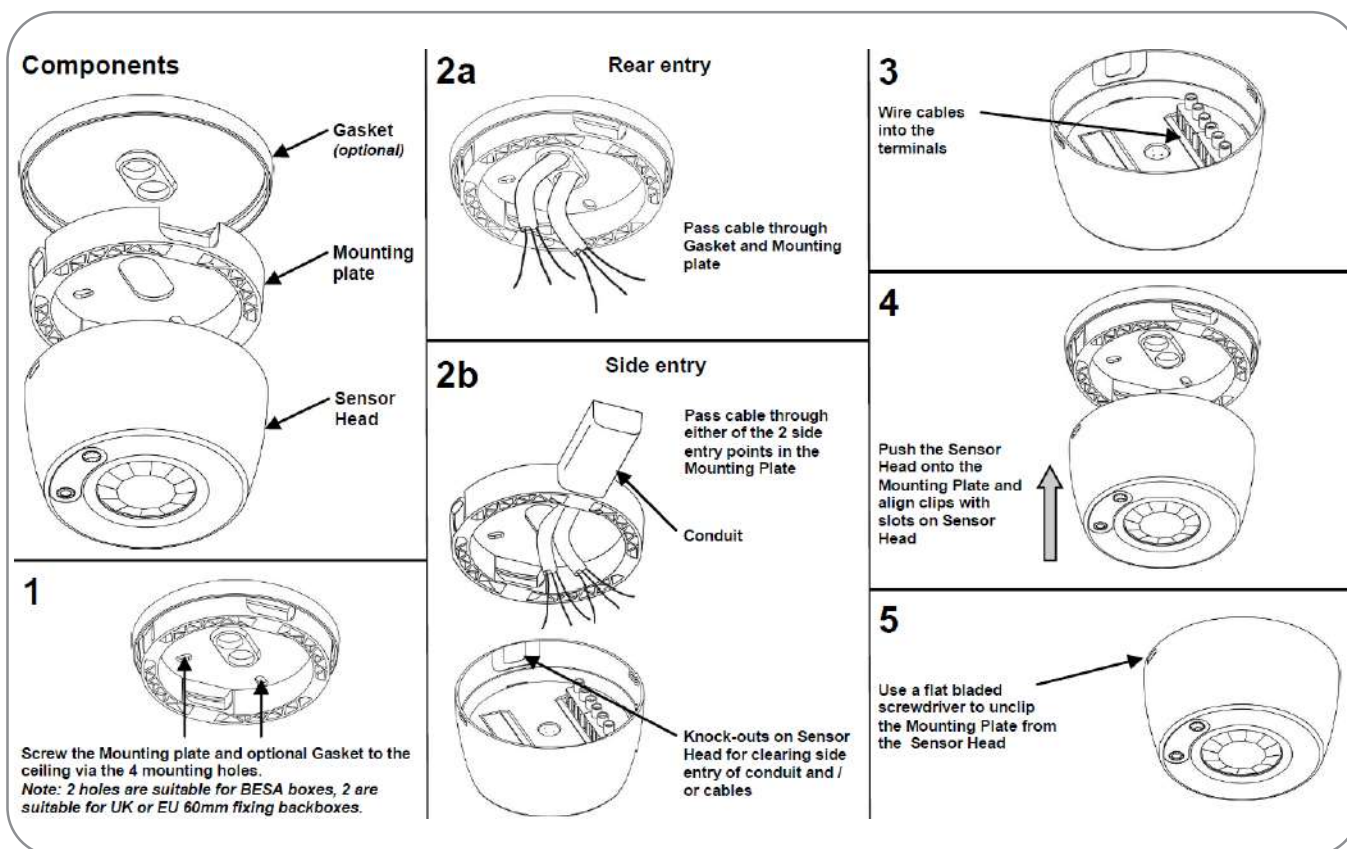


Installation

Choosing a suitable location

The GESM is designed to be ceiling mounted and must satisfy the following criteria:

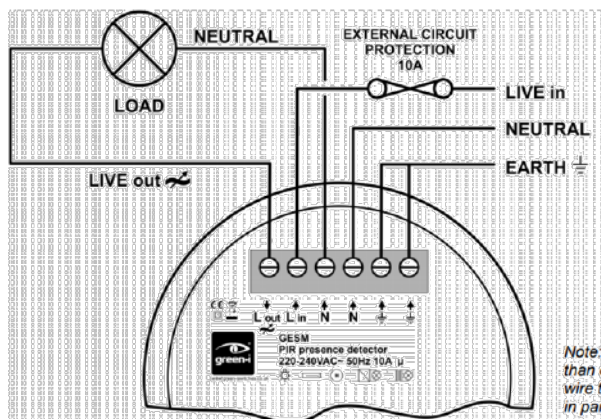
- The sensor should be sited so that the occupants of the room fall inside the detection pattern (see above) at a recommended height of 2.8m on the ceiling. Note that the lower the sensor is installed, the smaller the detection range will be subject to the parameters shown on the diagram.
- Avoid positioning the sensor where direct sunlight may enter the sensor element.
- Do not site the sensor within 1m of any lighting, forced air heating or ventilation.
- Do not fix the sensor to an unstable or vibrating surface.



GESM-LINE VOLTAGE SENSOR

Wiring diagram

Note: To switch from more than one position simply wire two or more sensors in parallel.



Power-up test procedure

- Power the sensor up – the load should come on immediately.
- Set the Lux level to maximum and the time to minimum.
- Vacate the room or remain very still and wait for the load to switch off (should take no more than 2 minutes).
- Check that the load switches on when movement is detected.
- To set the final Lux level, wait until the level of natural daylight is such that lighting is required. Starting with the Lux control at minimum, slowly increase the Lux until the lights come on. Note that when the Lux control is at maximum, the lights will always come on with occupancy.
- Set the time required.

Setup

To program a Time or Lux setting

- Press and release either the Time or Lux Button quickly (presses within 1 second of each other) to access 1 of 5 settings. 1 second after the switch has been released the LEDs will flash to signal which setting has been loaded.

To find out what the Lux or Time has been set to

- Press either switch for more than 3 seconds then release. The LED will flash to signify the setting.

To lock the programmed settings

- Use to stop accidental re-programming of the sensor.
- Press either switch for more than 10 seconds and do not release. It will toggle between lock and unlock. If the sensor was unlocked, whilst the button is pressed the LED will be lit, after 10 seconds it will extinguish. If the sensor is locked, the LED will flash once after 10 seconds.

Button presses	LED flashes	Time	Lux
1		10 seconds	1 (minimum)
2		5 minutes	3
3		10 minutes	5
4		20 minutes (default)	7
5		30 minutes	9 (default) Always on / lux disabled

Fault finding

What if the load does not turn ON?

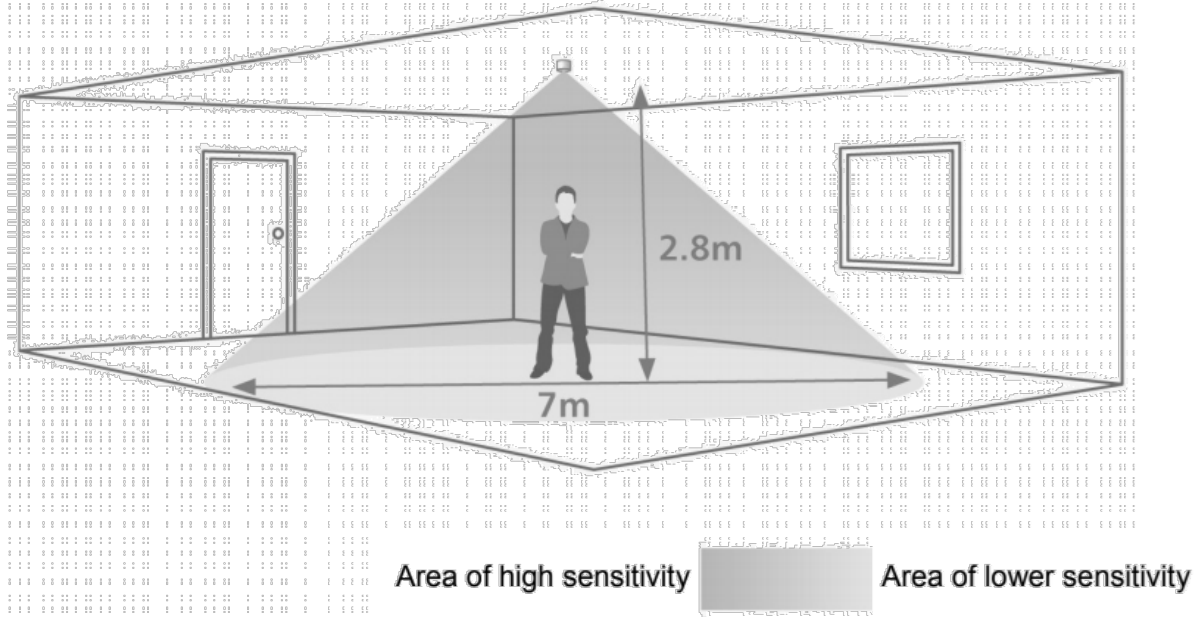
- Check to see if the live supply to the circuit is good. Strap across the L and LIVE OUT terminal to turn the load on.
- If the supply and wiring are good, check the Lux level setting. Increase the Lux level setting to allow the controller to turn on at higher ambient natural light level.
- If the detection range is smaller than expected, check the Detection Diagram on the opposite page. Rotating the sensor slightly may improve the range.

What if the load does not turn OFF?

- Ensure that the area is left unoccupied for longer than the Time Out Period.
- Ensure that the sensor is not adjacent to circulating air, heaters or lamps.

GESM-LINE VOLTAGE SENSOR

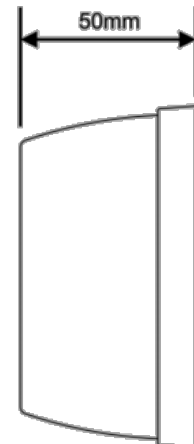
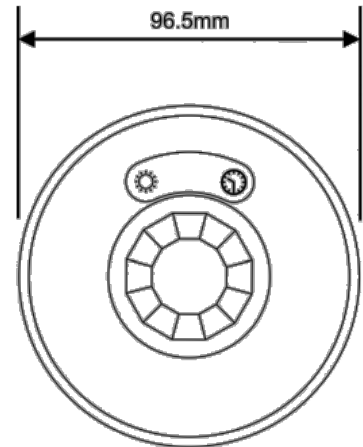
Detection Diagram



Technical data

Dimensions	See diagrams opposite
Weight	0.15kg
Supply voltage	230VAC +/- 10%
Frequency	50Hz
Circuit protection	10A
Maximum load	10 Amp resistive and incandescent lighting 6 Amp fluorescent lighting and resistive 3 Amp compact fluorescent lighting 3 Amp low energy lighting 3 Amp low voltage lighting (switch primary of transformer) Fluorescent lighting (max 6 fittings recommended) For fluorescent lighting, total power factor correction capacitance must not exceed 40µF. 3 Amp fans and ventilation equipment Switch ON lighting loads via a contactor minimum load 100mA
Power consumption	On 572mW, Off 670mW
Terminal capacity	2.5mm ²
Temperature	-10°C to 35°C
Humidity	5 to 95% non-condensing
Material (casing)	Flame retardant ABS and PC/ABS
Type	Class 2
IP rating	40 without gasket. 54 with gasket
Compliance	EMC-2004/108/EC LVD-2006/95/EC

GESM (with gasket fitted)



IMPORTANT NOTICE!

This device should be installed by a qualified electrician in accordance with the latest edition of the IEE Wiring Regulations and any applicable Building Regulations.



TECHNICAL INFORMATION

A name you can trust – Hubbell

Founded in 1888 by Harvey Hubbell II, Hubbell Inc. has been a long-time contributor to new product design and manufacturing innovation. In 1896, Hubbell invented the world's first lighting control device, the pull chain switch.

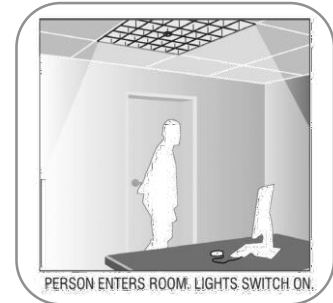
Over 100+ years later, Hubbell Building Automation, headquartered in Austin, Texas, continues this tradition of innovation with the development of a vast array of energy saving lighting controls.

Innovative occupancy sensors

Hubbell Building Automation sets the standard. Few people realize that traditional occupancy sensors need adjustment throughout the year when seasons change, airflow is modified and furniture layout or occupancy patterns change. If sensors are not constantly monitored and adjusted, your energy savings objectives will not be met. HBA realised this and was the first to introduce the industry's first self-adapting sensor. HBA's patented IntelliDAPT® technology is the key to maximizing energy savings – from open offices to the manufacturing floor. Digital microprocessor technology makes all sensor adjustment decisions. Smart software monitors the controlled area, and makes sensitivity and timer adjustments automatically. Occupancy sensors with IntelliDAPT provide maintenance free "Install and Forget" operation.

Smart technology for today's needs

IntelliDAPT Technology is an HBA patented innovation that delivers benefits to both building owners and occupants. The building owner achieves reduced energy costs, fewer adjustments and less maintenance while the building occupant experiences fewer false on and offs and disturbances. IntelliDAPT Technology occupancy sensors use microprocessors that make all the decisions for setting adjustments. Internal software constantly monitors the controlled area and automatically adjusts the sensitivity and timer based on environmental history. This means that instead of manually



adjusting the sensor for seasonal changes, modified airflow, furniture layout or occupancy pattern changes, the sensor automatically adjusts itself. These automatic adjustments eliminate the need for multiple manual adjustments by maintenance personnel or outside contractors. HBA offers IntelliDAPT Technology throughout its product offering – wall switches, ceiling and wall mount sensors – in conjunction with dual technology, ultrasonic and passive infrared products.





How to select the right technology for the proper application

Passive infrared (PIR) technology senses occupancy by detecting the movement of heat emitted from the human body against the background space. Unlike US technology, PIR sensors require an unobstructed line-of-sight for detection. These sensors use a segmented lens which divides the coverage area into zones. Movement between zones is then interpreted as occupancy. PIR sensors are ideal for detecting major motion (e.g. walking) and they work best in small, enclosed spaces with high levels of occupant movement.

Benefits:

- Long range detection
- Reliable triggering
- Cost efficient

Ultrasonic (US) technology senses occupancy by bouncing sound waves (32kHz or 45kHz) off of objects and detecting a frequency shift between the emitted and reflected sound waves. Movement by a person or object within a space causes a shift in frequency which the sensor interprets as occupancy. While US occupancy sensors have a limited range, they are excellent at detecting even minor motion such as typing and filing and they do not require an unobstructed line-of-sight. This makes US technology sensors ideal for an application like an office with cubicles or a restroom with stalls.

Benefits:

- Detects small motion
- Sees around obstructions
- Cost efficient

Dual technology occupancy sensors combine both passive infrared (PIR) and ultrasonic (US) technologies for maximum reliability. Because US and PIR need to both detect occupancy to turn lighting on, dual technology sensors minimize the risk of lights coming on when the space is unoccupied – false triggering. Continued detection by only one technology then keeps lighting on as necessary. Dual technology sensors offer the best performance for most applications.

Benefits:

- Track occupancy on with two sensing methods
- Minimizes false triggering
- Consistent, reliable operation

Product Image

"Quick To Install" says it all. Capable of interconnecting a sensor and power pack in a fraction of the time. The QTI connector eliminates low-voltage wiring nuts to ensure error-free connections. The QTI system saves time and money, a 25% savings in labor costs alone, and the elimination of call backs and costly troubleshooting. The QTI system is available on most Hubbell Building Automation low-voltage sensors and power packs.

Key Features

- Dramatically reduces installation cost
- Easy to install; fast and efficient
- Completely removable and reusable if necessary
- Eliminates need for large spools of cable for installation of plenum cable runs
- Reduces possibility of transposing wires as in conventional splicing wire terminations
- Standard features on OMNIUS, OMNIR, LODT and UVPP.



Passive Infrared (PIR)



Ultrasonic (US)



Dual Technology



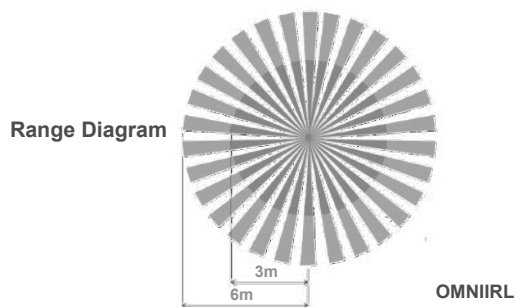


OMNIIRL / OMNIIRLRP

OMNI™ PASSIVE INFRARED CEILING SENSOR FEATURING IntelliDAPT®

Key features

- IntelliDAPT self-adaptive technology – no manual adjustment required
- All-digital passive infrared (PIR) sensor
- Non-volatile memory for sensor settings
- 139 square-metre coverage area (depending on model)
- Optional relay and photocell control
- Quick to Install (QTI) connector
- Uses UVPP Power Pack - not included



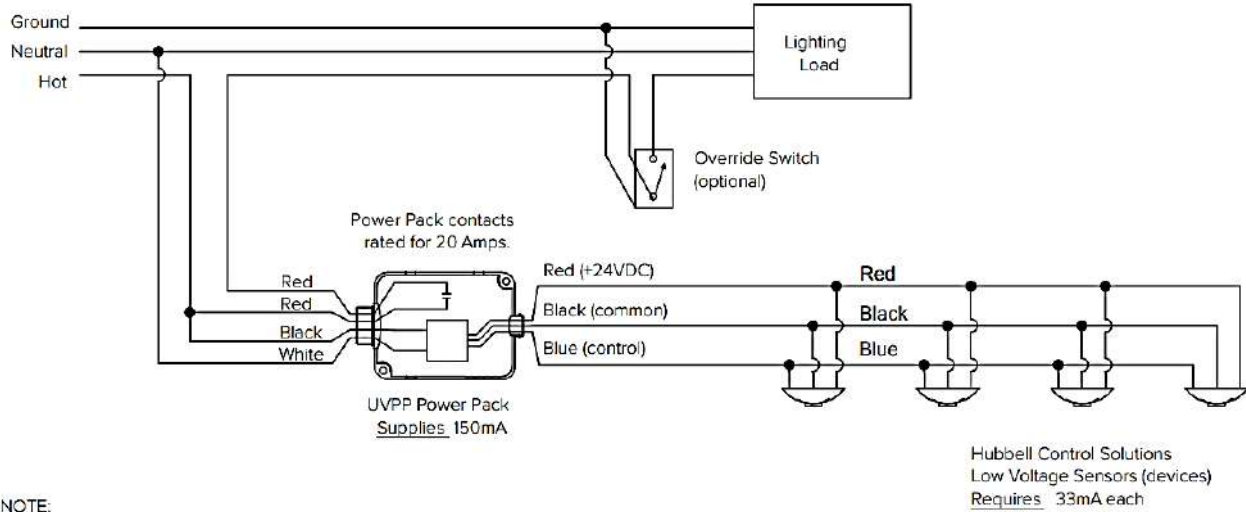
SPECIFICATIONS

IntelliDAPT technology	Auto reset from test setting Self-adjusting timer Self-adjusting ultrasonic and passive infrared thresholds Automatic false-on /false-off corrections
LED lamp	Red – infrared motion Green - ultrasonic motion
Timer timeout	Automatic mode: 8–30 minutes. (self-adjusts based on occupancy) Test mode: 8 seconds (for an easy check at installation)
Passive Infrared (PIR)	Dual-element pyrometer and 12-element cylindrical rugged lens
RP Option	Relay and photocell included Relay: NO + NC contacts; SPDT; 500 mA rated @ 24VDC; three-wire isolated relay Photocell: adjustable natural-light override ranges from 0–1,000 lux
Coverage	139.35m ² (depending on model)
Power Requirements	24 VDC, 33mA (uses UVPP Power Pack – not included)
Output	24 VDC active high-logic control signal with short circuit protection and optional dry contact (see: RP option)
Operating Environment	Indoor use only Operating temperature: 0° – 40°C 0% to 95% relative humidity, non-condensing
Construction	Casing – rugged, high-impact, injection-molded plastic KJB ABS Cycolac (UL-945VA) flame class rating, UV inhibitors Colour-coded leads are 152.4mm long
Size and Weight	Size: 114mm diameter, 38mm height Weight: 142g
Colour	Off - white
Mounting	Mounting base provided Recommended maximum mounting height: 3.65m
Warranty	5 years



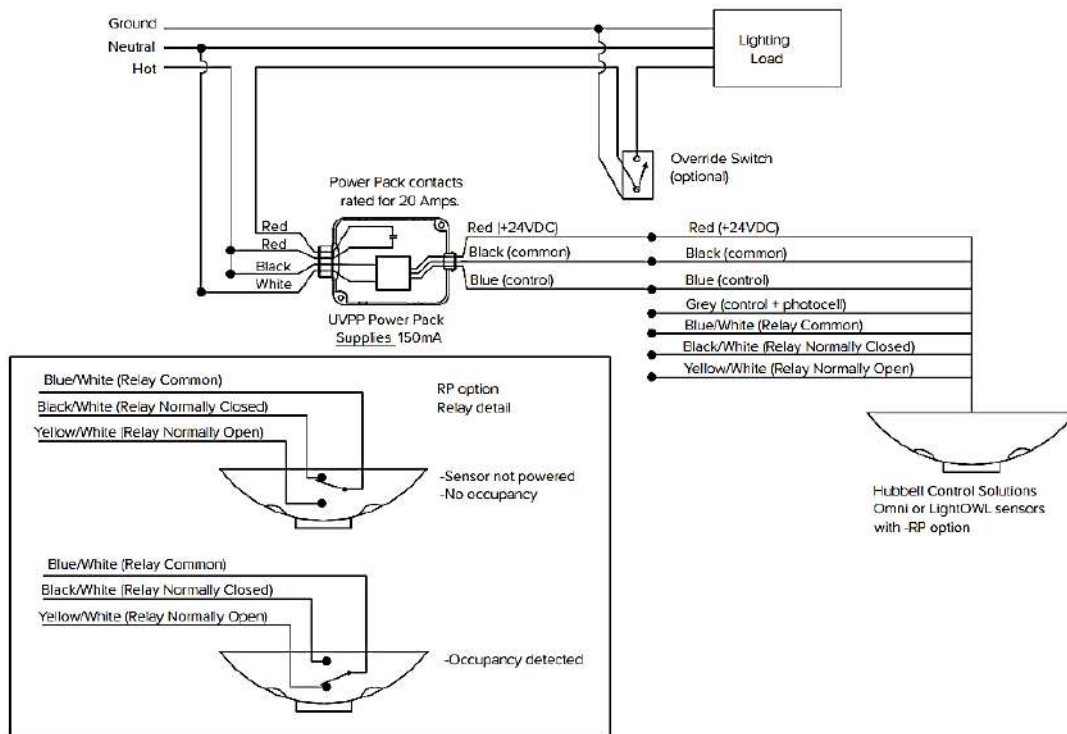
OMNIIRL / OMNIIRLRP

WIRING DIAGRAM



NOTE:

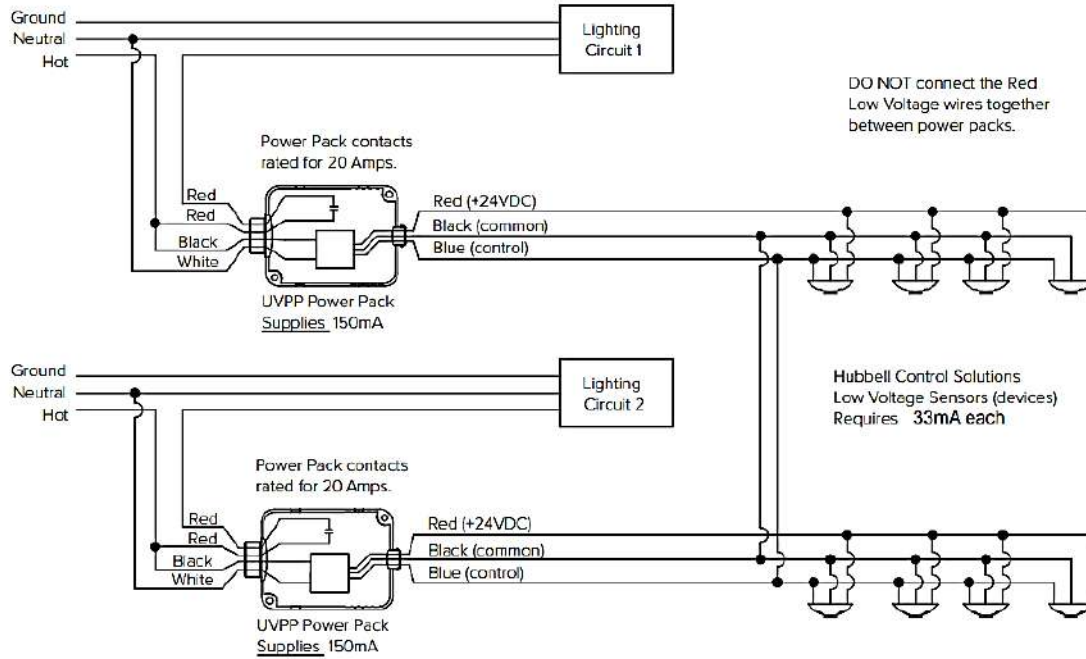
1. DO NOT attempt to power more than 4 devices, be it sensors or slave packs, from a single power pack.





OMNIIRL / OMNIIRLRP

WIRING DIAGRAM



NOTES:

1. Lighting load turns on when at least one sensor detects motion
2. DO NOT attempt to power more than 4 devices, be it sensors or slave packs, from a single power pack
3. No more than 4 power packs should be connected in this way

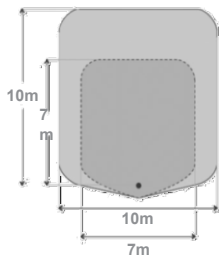


OMNIUS / OMNIUSRP

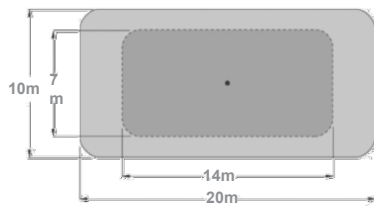
OMNI™ ULTRASONIC CEILING SENSOR FEATURING IntelliDAPT®

Key features

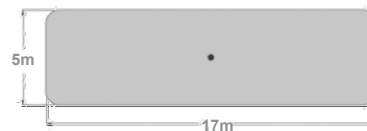
- IntelliDAPT self-adaptive technology – no manual adjustment required
- All-digital ultrasonic (US) technology
- Non-volatile memory for sensor settings
- 92 – 185 square-metre coverage area (depending on model)
- Optional relay and photocell control
- Quick to Install (QTI) connector
- Uses UVPP Power Pack - not included



OMNIUS1000 RANGE DIAGRAM



OMNIUS2000 RANGE DIAGRAM



OMNIUS2000 RANGE DIAGRAM HALFWAY APPLICATION

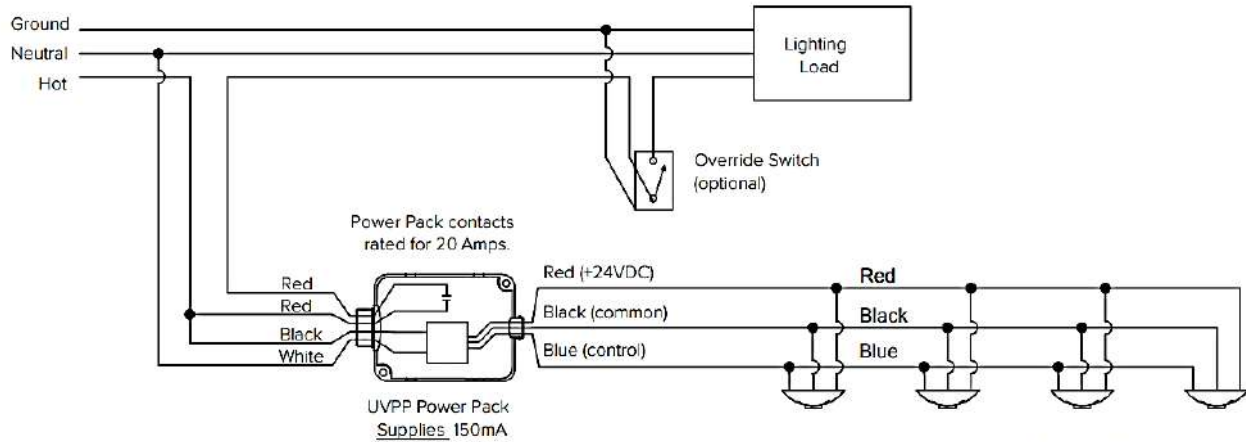
SPECIFICATIONS

IntelliDAPT technology	Auto reset from test setting Self-adjusting timer Self-adjusting ultrasonic and passive infrared thresholds Automatic false-on /false-off corrections
Timer timeout	Automatic mode: 8–30 minutes. (self-adjusts based on occupancy) Test mode: 8 seconds (for an easy check at installation)
Ultrasonic (US) output	OMNIUS1000 and OMNIUS2000: 32kHz output
RP Option	Relay and photocell included Relay: NO + NC contacts; SPDT; 500 mA rated @ 24VDC; three-wire isolated relay Photocell: adjustable natural-light override ranges from 0–1,000 lux
Coverage	92 - 185m ² (depending on model)
Power Requirements	24 VDC, 33mA (uses UVPP Power Pack – not included)
Output	24 VDC active high-logic control signal with short circuit protection and optional dry contact (see: RP option)
Operating Environment	Indoor use only Operating temperature: 0° – 40°C 0% to 95% relative humidity, non-condensing
Construction	Casing – rugged, high-impact, injection-molded plastic KJB ABS Cyclocac (UL-945VA) flame class rating, UV inhibitors Colour-coded leads are 152.4mm long
Size and Weight	Size: 114mm diameter, 38mm height Weight: 142g
Colour	Off - white
Mounting	Mounting base provided Recommended maximum mounting height: 3.65m
Warranty	5 years



OMNIUS / OMNIUSR

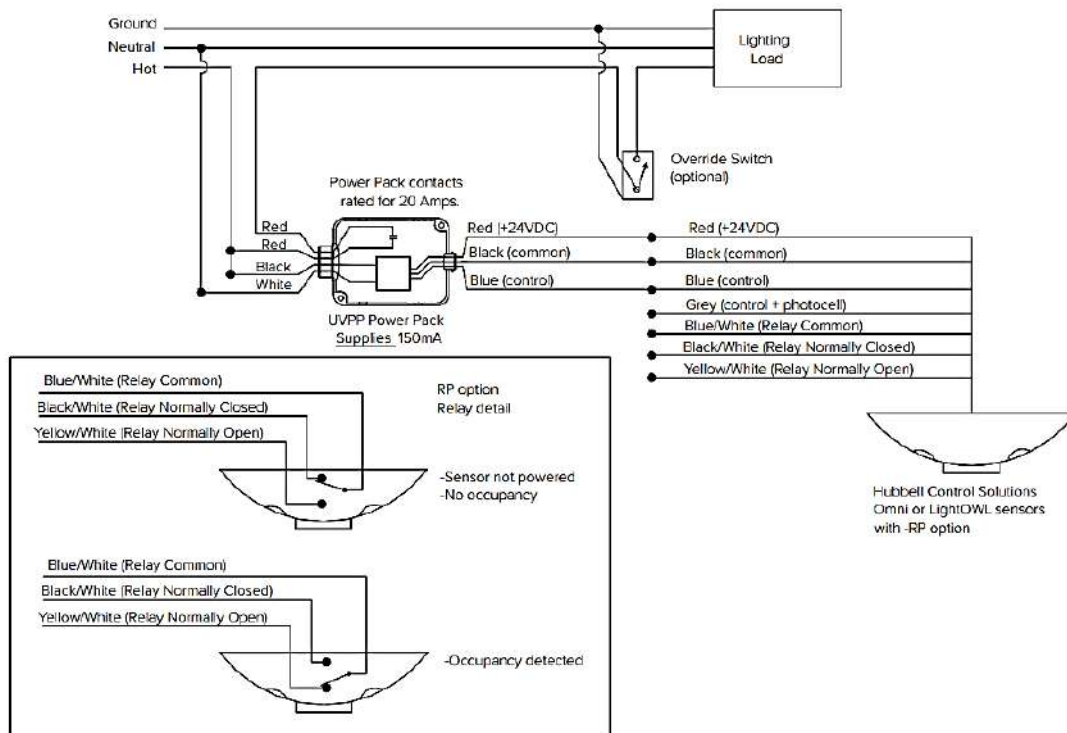
WIRING DIAGRAM



Hubbell Control Solutions
Low Voltage Sensors (devices)
Requires 33mA each

NOTE:

- DO NOT attempt to power more than 4 devices, be it sensors or slave packs, from a single power pack.

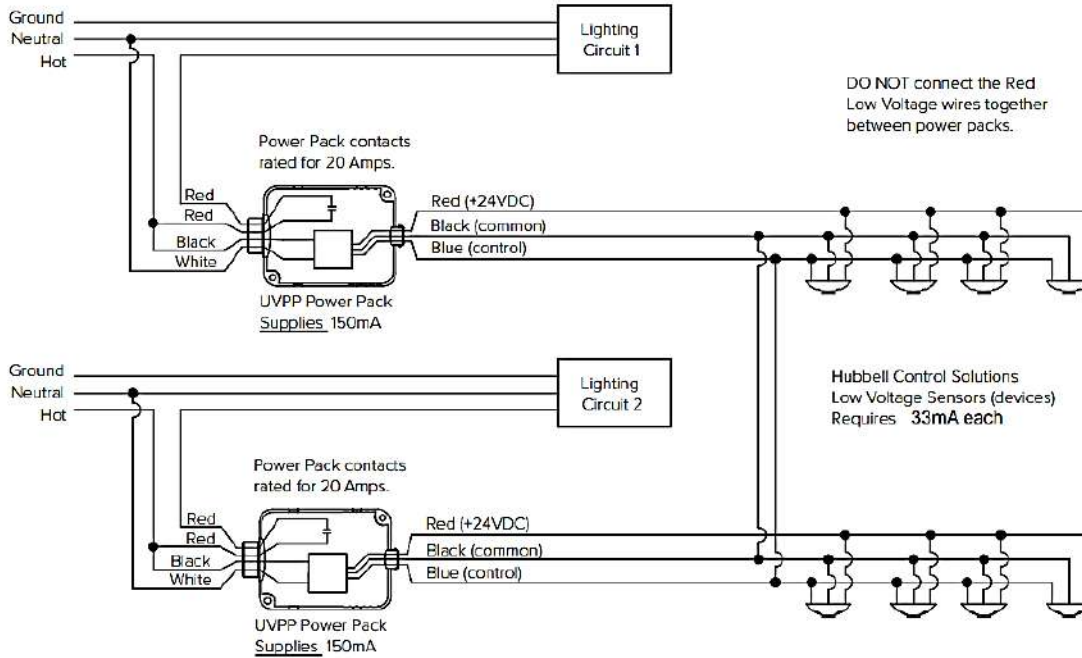


Hubbell Control Solutions
Omni or LightOWL sensors
with -RP option



OMNIUS / OMNIUSR

WIRING DIAGRAM



NOTES:

1. Lighting load turns on when at least one sensor detects motion
2. DO NOT attempt to power more than 4 devices, be it sensors or slave packs, from a single power pack
3. No more than 4 power packs should be connected in this way

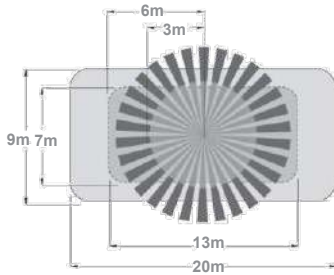


OMNIDT / OMNIDTRP

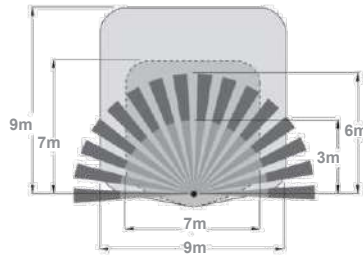
OMNI™ DUAL TECHNOLOGY ULTRASONIC AND PASSIVE INFRARED CEILING SENSOR FEATURING IntelliDAPT®

Key features

- IntelliDAPT self-adaptive technology – no manual adjustment required
- All-digital dual technology (ultrasonic [US] and passive infrared [PIR]) sensor
- Non-volatile memory for sensor settings
- 92-185 square-metre coverage area (depending on model)
- Optional relay and photocell control
- Quick to Install (QTI) connector
- Uses UVPP Power Pack - not included



OMNIDT2000
RANGE DIAGRAM



OMNIDT1000
RANGE DIAGRAM



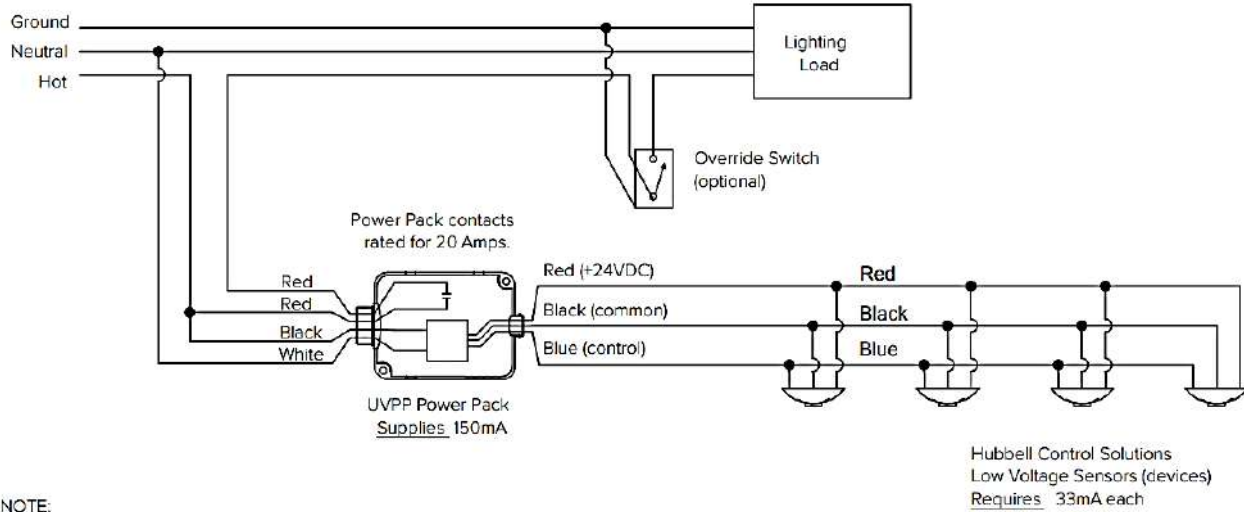
SPECIFICATIONS

IntelliDAPT technology	Auto reset from test setting Self-adjusting timer Self-adjusting ultrasonic and passive infrared thresholds Automatic false-on/false-off corrections
Timer timeout	Automatic mode: 8–30 minutes. (self-adjusts based on occupancy) Test mode: 8 seconds (for an easy check at installation)
Ultrasonic (US) output	OMNIDT1000 and OMNIDT2000: 32kHz
Passive Infrared (PIR)	Dual-element pyrometer and 12-element cylindrical rugged lens
RP Option	Relay and photocell included Relay: NO + NC contacts; SPDT; 500 mA rated @ 24VDC; three-wire isolated relay Photocell: adjustable natural-light override ranges from 0–1,000 lux
Coverage	92 - 185m ² (depending on model)
Power Requirements	24 VDC, 33mA (uses UVPP Power Pack – not included)
Output	24 VDC active high-logic control signal with short circuit protection and optional dry contact (see: RP option)
Operating Environment	Indoor use only Operating temperature: 0° – 40°C 0% to 95% relative humidity, non-condensing
Construction	Casing – rugged, high-impact, injection-molded plastic KJB ABS Cyclocac (UL-945VA) flame class rating, UV inhibitors Colour-coded leads are 152.4mm long
Size and Weight	Size: 114mm diameter, 38mm height Weight: 142g
Colour	Off - white
Mounting	Mounting base provided Recommended maximum mounting height: 3.65m
Warranty	5 years



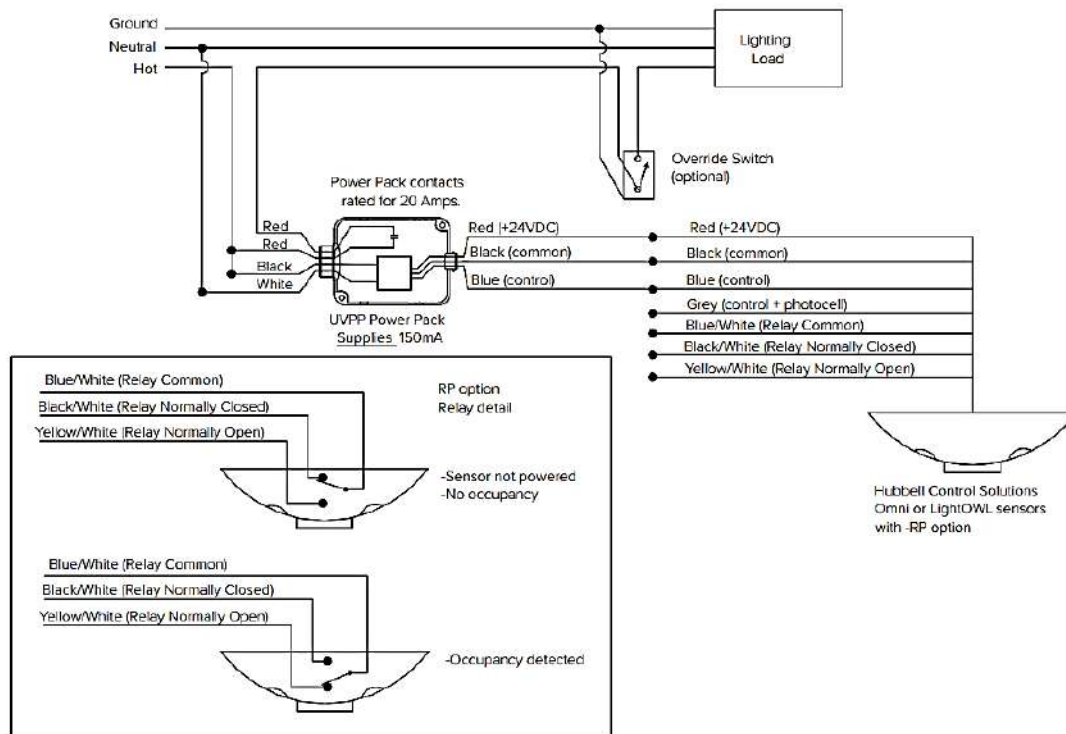
OMNIDT / OMNIDTRP

WIRING DIAGRAM



NOTE:

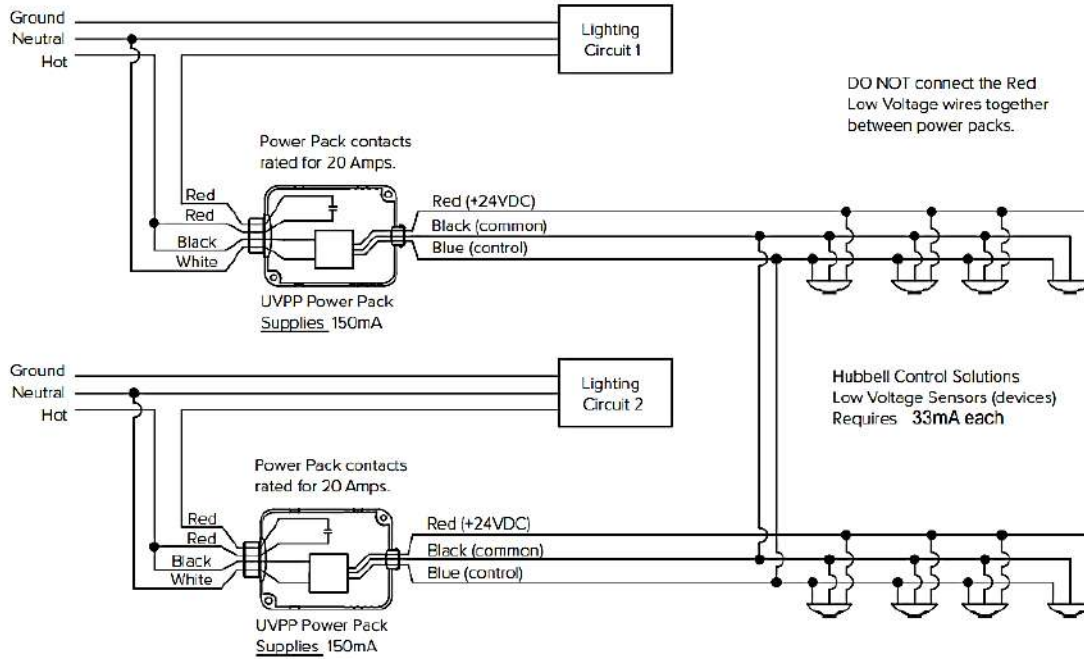
- DO NOT attempt to power more than 4 devices, be it sensors or slave packs, from a single power pack.





OMNIDT / OMNIDTRP

WIRING DIAGRAM



NOTES:

1. Lighting load turns on when at least one sensor detects motion
2. DO NOT attempt to power more than 4 devices, be it sensors or slave packs, from a single power pack
3. No more than 4 power packs should be connected in this way



UVPP

UNIVERSAL VOLTAGE POWER PACK

Key features

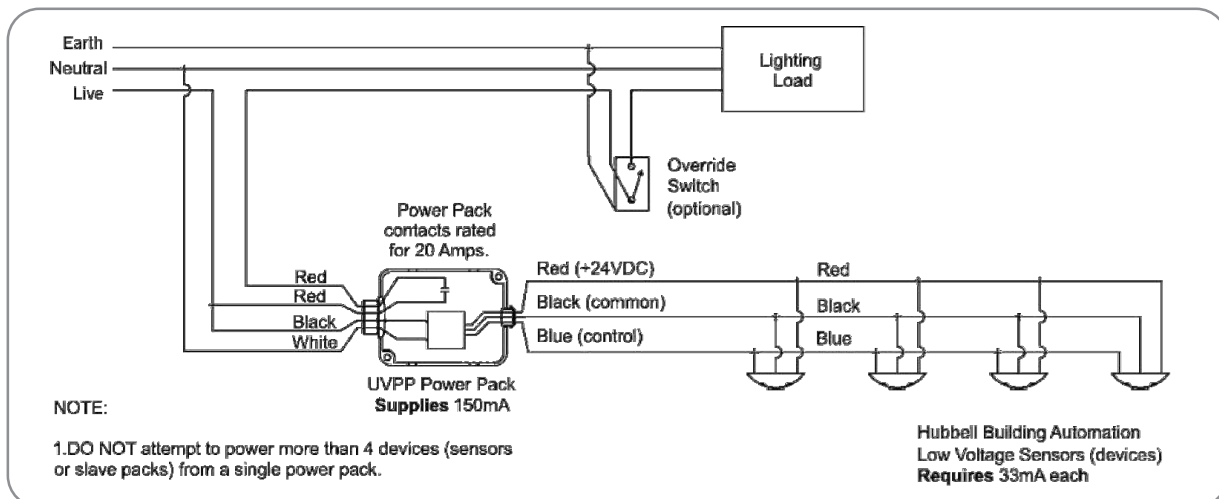
- Power pack can switch up to 4 ceiling sensors
- Universal voltage (100–277 VAC; 50/60Hz)
- Automatic voltage detection
- Electrical load switching capability: maximum of 20 Amps
- Regulated 24 VDC current; 150mA output; short circuit protected
- Zero Arc Point Switching
- Plenum rated
- Mounts: inside or outside a junction box; inside a fluorescent ballast cavity
- Complete with exclusive Quick to Install (QTI) connector



SPECIFICATIONS

Power Requirements	100–277 VAC; 50/60Hz Single phase only
Output	24 VDC; 150mA nominal, isolated and regulated
Relay Contact Rating	20A: 120 VAC Incandescent 20A: 120 or 277 VAC Ballast 745W: 120 or 277 VAC Motor Load
Construction	High-impact UL 94-5V plastic
Plenum Rated	Complies with requirements for use in a plenum area Plenum rated for external junction box mounting
Operating Environment	Indoor use only Operating temperature: 0° – 40°C 0% to 95% relative humidity, non-condensing
Size and Weight	Size: 93.92mm x 59.18mm x 34.54mm
Colour	Black
Warranty	5 years

WIRING DIAGRAM



CEILING AND WALL MOUNT ACCESSORIES



S-1M-2F



CAB 10/20

SPECIFICATIONS

CAB10	3m Plenum rated, 3 Core 3 Conductor QTI cable
CAB20	6m Plenum rated, 3 Core 3 Conductor QTI cable
S1M2F	Splitter 1 male, 2 female, QTI system
OPE	OMNI protective enclosure
WGWS	Wire guard for wall switches
WGOMNI	Ceiling mount guard for OMNI sensors
TD200 DIGITAL	Programmable timer
WGLO	Wire guard for LightOWL sensors

NOTE:

- Available on request



HBA WASP2™

LED HIGH BAY OCCUPANCY SENSORS

The HBA WASP2 LED High Bay Occupancy Sensor is specifically designed for ON/OFF control of high bay fixtures in warehouses, distribution centers and even in offices. The sensor is available in end mount and surface mount versions with either single or dual outputs. All WASP2 sensors feature a daylight sensor which can be used to increase energy savings by turning off lights when there is sufficient natural light.

Key features

- IntelliDAPT self-adaptive technology – no manual adjustment required
- All-digital ultrasonic (US) technology
- Non-volatile memory for sensor settings
- 92 – 185 square-metre coverage area (depending on model)
- Optional relay and photocell control
- Quick to Install (QTI) connector
- Uses UVPP Power Pack - not included

Lens Options (ordered separately)



SURFACE MOUNT



END MOUNT



AREA LENS



AISLE LENS



HALF AISLE LENS



180° AREA LENS



SPECIFICATIONS

Load ratings (Line voltage sensors)	120VAC: 0-800W ballast or 0-600W tungsten, 60Hz 277VAC: 0-1200W ballast 347VAC: 0-1500W ballast 208/240VAC: 0-1200W ballast 480VAC: 0-2400W ballast QuarterHP motor load @ 120VAC, 1/6HP @ 347VAC
User interface	Twelve pin dip switch*
Timer timeout	Primary: 8 second test mode - 4, 8, 16 and 30 min timeouts Secondary: Can be disabled (switches off with primary timer) - 30, 60 and 90 min timeouts
Passive infrared	Dual element pyrometer and spherical Fresnel lens designed for robust detection of a walking person*
Daylight Sensor	Range 300 - 25 000 LUX End mount sensor: Downward and upward looking daylight sensors (Direction selectable via dip switch) Surface mount sensor: Downward looking daylight sensor only
Interchangeable lens options and coverage	Lens option: 360° area lens, aisle lens, half aisle lens and 180° area lens (lenses sold separately - not included with sensor module) All lenses provide 1.4:1 coverage up to 9m, 1.1:1 coverage 9m-13m
Power Requirements	Line Voltage sensors: 120/277/347 VAC Low voltage: 24 VDC, 33mA
Output	24 VDC active high-logic control signal with short circuit protection and optional dry contact
Operating Environment	Standard version: Indoor use only Operating temperature: 0° – 65°C 0% to 95% relative humidity, non-condensing Low temperature/Water tight version: Indoor use only
Construction	Sensor Module and Lens Assembly - high impact, injection-molded plastic
Size and weight	Size: 101.6mm diameter, 38.1mm height Weight: 198g
Colour	White
Mounting	Surface mount sensor: Mounts directly to fixture or j-box via 2 x 31.75mm stainless steel screws and locking nuts End mount sensor: Mounts directly to end of fixture through extended chase nipple
Warranty	5 Years

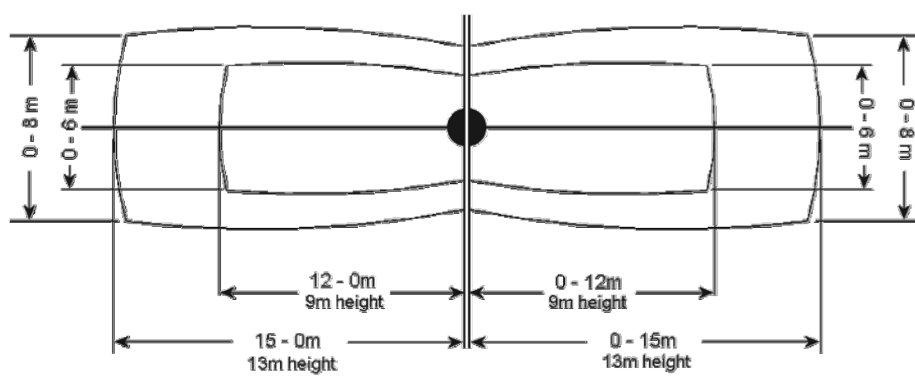
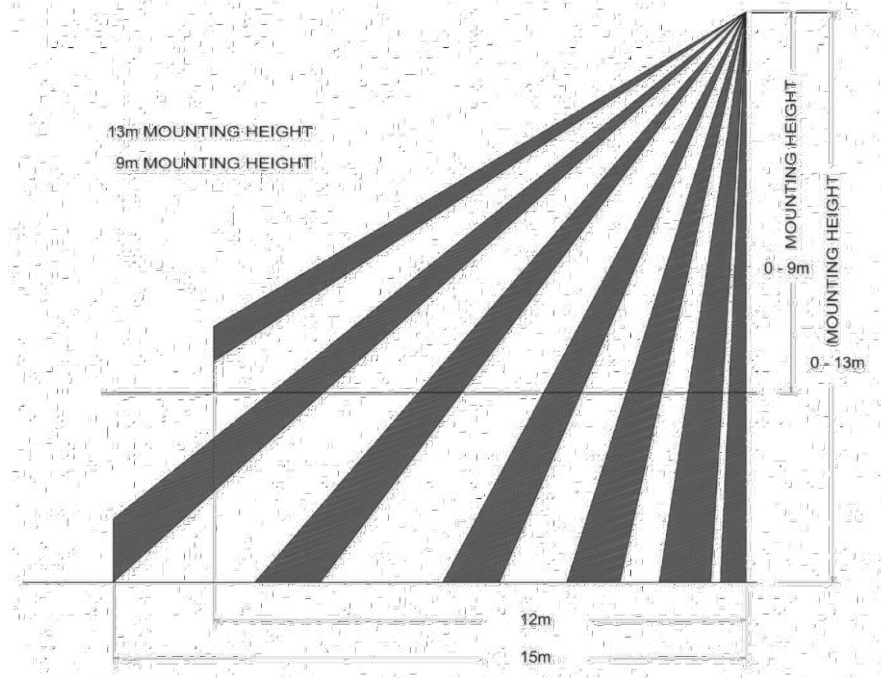
NOTE:

- When used with warm start ballast, a 1-2 second delay from occupancy detection to lamp turn-on may be experienced.



HBA WASP2™

SENSOR LENS COVERAGE AND DETECTION PATTERNS (When Mounted at 9m and 13m)

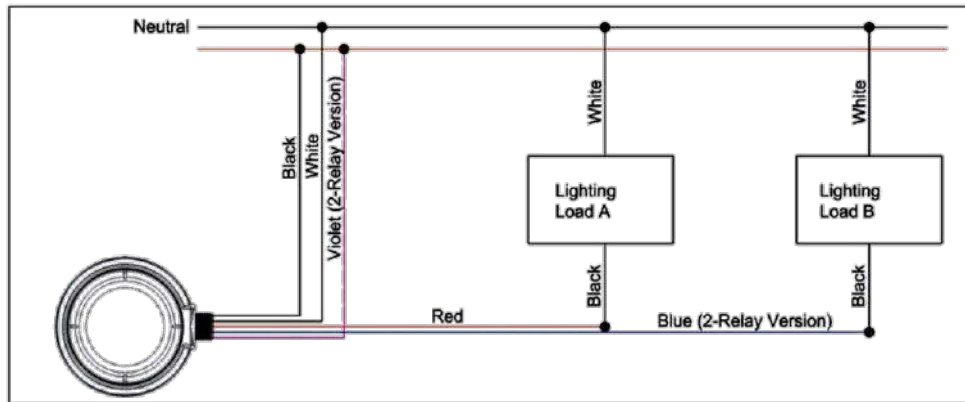


Top view of aisle lens coverage pattern

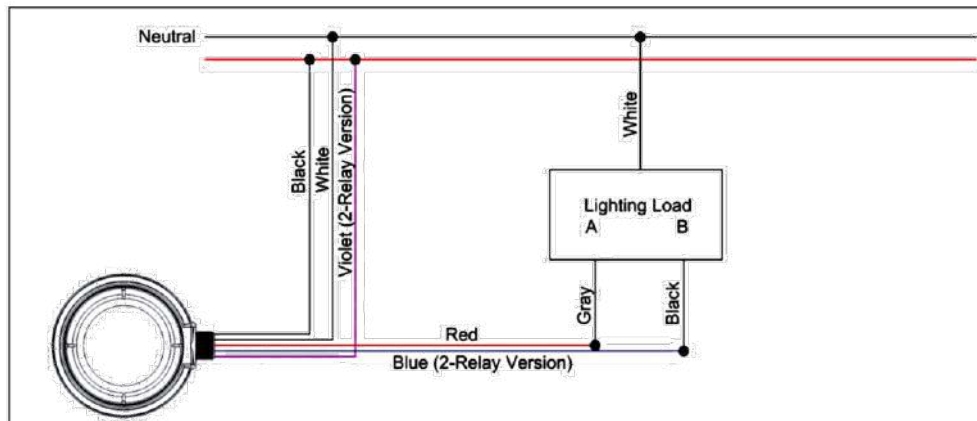


HBA WASP2™

WIRING DIAGRAM

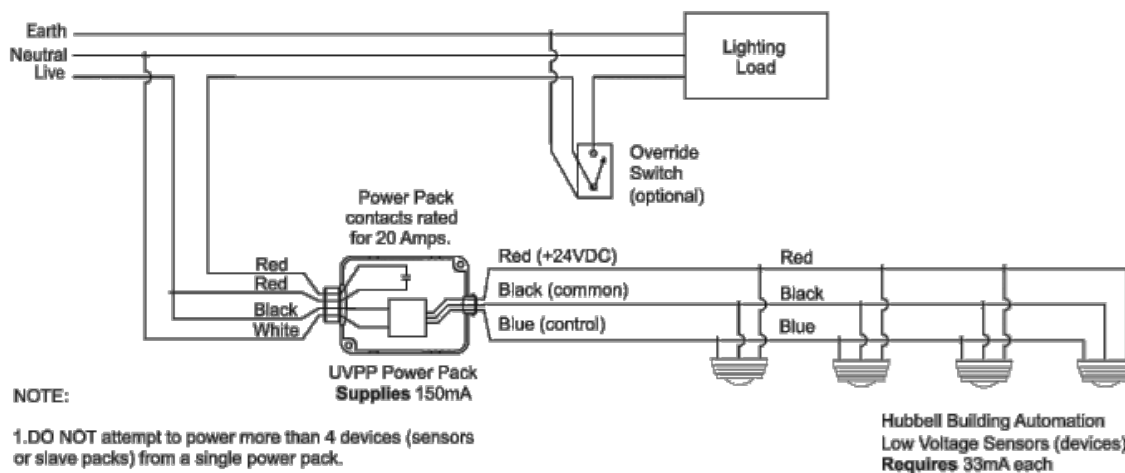


Wiring Diagram A – 120/277/347VAC Line voltage wiring diagram for single and dual relay sensors (Single Phase Only).



Wiring Diagram B – 120/277/347VAC Line voltage wiring diagram for connecting a dual relay sensors to a switching ballast.

Note: Disable Smart Cycling for this configuration



Wiring Diagram C - Low voltage sensor wiring diagram.



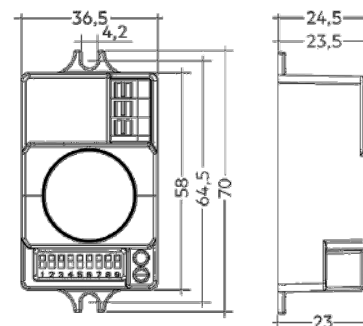
DIGITAL LUMINAIRE SENSOR

luxCONTROL lighting control system
SWITCH sensors

smartSWITCH HF 5DP f
Automatic switching based on motion and light level

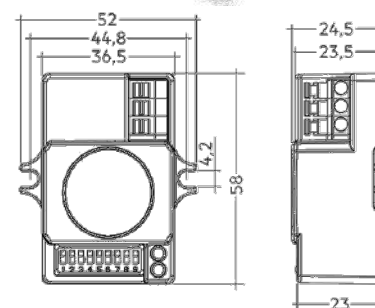
Product description

- Motion detector for luminaire installation
- Motion detection through glass and thin materials (except metal)
- For automatic on/off switching of electronic ballasts
- Bright-out function: luminaire is not switched on if there is adequate brightness
- Delay time, detection range and light value for the bright-out function can be set via 9 dip switches
- Maximum installation height 5m
- Two housing options allowing flexible installation
- Variable detection area (100 – 10 %)
- Zero cross switching supported
- 5 year guarantee



smartSWITCH HF 5DP f

TECHNICAL DATA	
Rated supply voltage	220 – 240V
Mains frequency	50Hz
Power	< 0.5W
Frequency	5.8GHz (75 MHz)
Transmission power	< 0.2mW
Load resistive	800W
Load capacitive	400VA
Detection angle	30 – 150°
Max. detection area at 3m mounting height	∅ = 7m
Max. mounting height	5m
tc	85 °C
Ambient temperature ta	-20 ... +70 °C
Storage temperature ts	-20 ... +70 °C
Humidity	80min. 5% ... max. 85% at 30°C
Type of protection	IP20
Protection class	Reinforced insulation
Casing material	PC, halogen-free
Casing colour	RAL 9016 (white)



smartSWITCH HF 5DP S f

ORDERING DATA

Type	Article Number	Dimensions L x W x H	Packaging, Carton	Weight per Piece
Smart SWITCH HF 5DP f	28002214	70 x 36.5 x 24.5mm	5 pieces	0.040 kg
Smart SWITCH HF 5DP S f	28002235	58 x 48.5 x 24.5mm	5 pieces	0.040 kg



DIGITAL LUMINAIRE SENSOR

luxCONTROL lighting control system
SWITCH sensors

smartSWITCH HF 5DP f
Automatic switching based on motion and light level

Standards

- EN 61347-1
- EN 61347-2-11
- EN 300 440-2 V1.4.1 (2010-08)
- EN 301 489-3 V1.6.1 (2013-08)
- EN 62479:2010
- EN 55015:2013 + A1:2015
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- EN 61547:2009

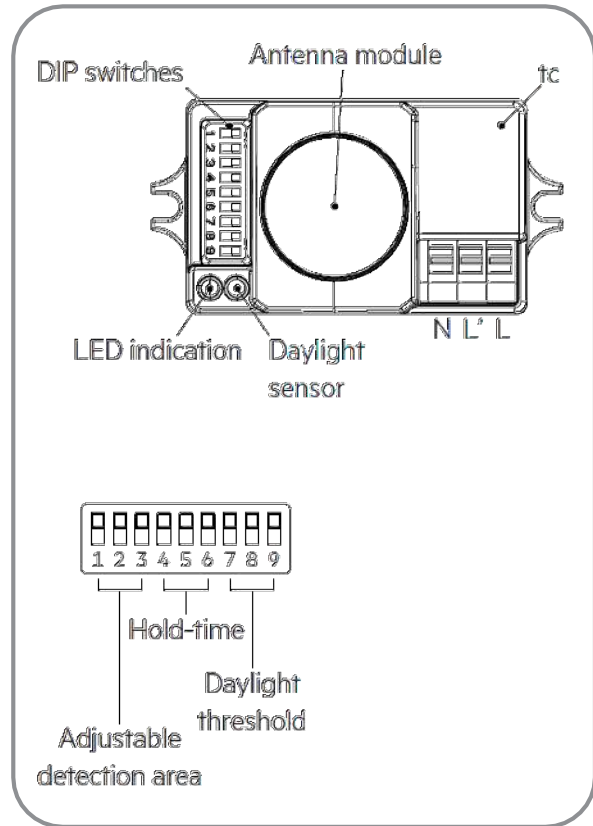
1.1 Glow-wire test according to EN 60598-1
850 °C passed

Common

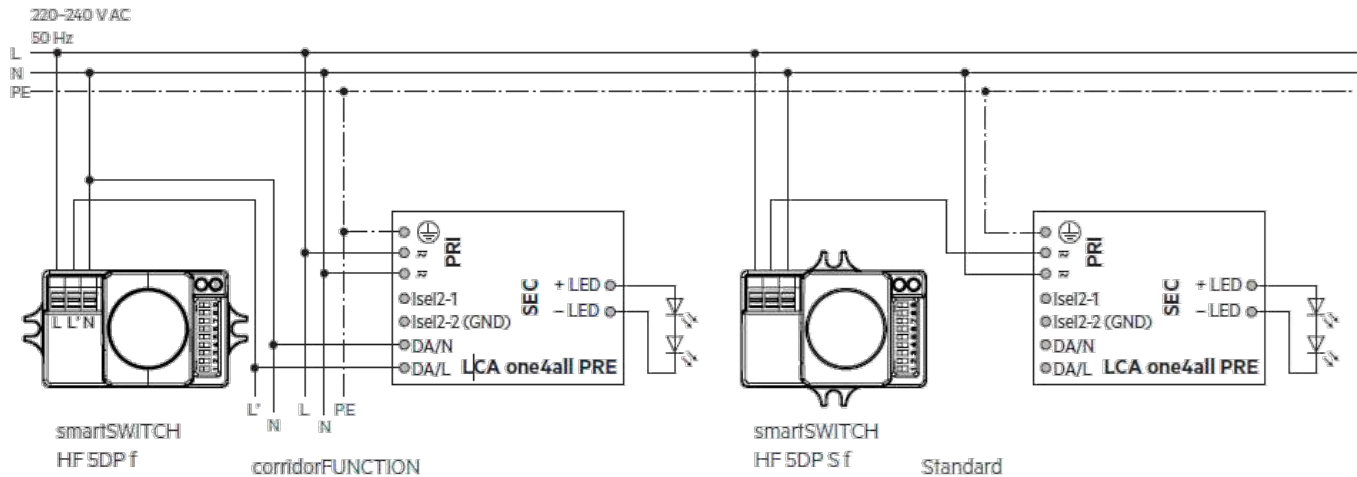
smartSWITCH HF 5DP f and S f provides simple cost-effective motion detection in combination with the corridorFUNCTION offered by Tridonic electronic control gear. When the sensor detects movement it triggers a predefined motion detection profile in the control gear. If the user-definable light value at the integrated light sensor is exceeded, the control gear remains switched off. High-frequency technology enables the sensor to be installed in completely enclosed luminaires.

Installation

- ⚠ • Not for use with phase cut dimmers
- The sensor must protrude over the light sources
- The power supply must be disconnected before installation
- Suitable for installation only in indoor luminaires (e.g. corridors and closed parking garage) without vibration
- Opening angle of the sensor: must be at least 45%
- Motion detection: only possible through thin housing material (e.g. plastic or glass), do not use metal housing
- Light sensor: must be able to detect reflected artificial light and reflected daylight
- Reflected HF waves (e.g. of walls, floors, ceilings or furniture) from other transmitters affect motion detection



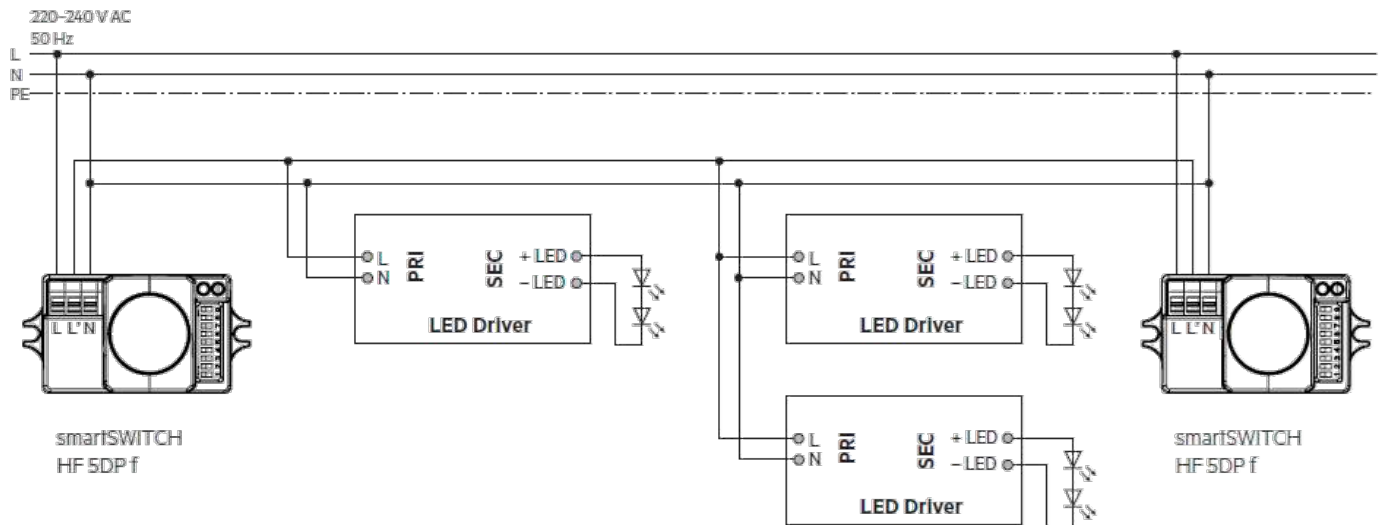
WIRING DIAGRAM





DIGITAL LUMINAIRE SENSOR

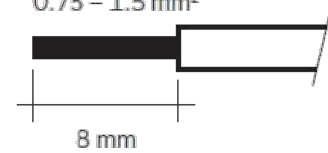
Combination multiple sensors and drivers



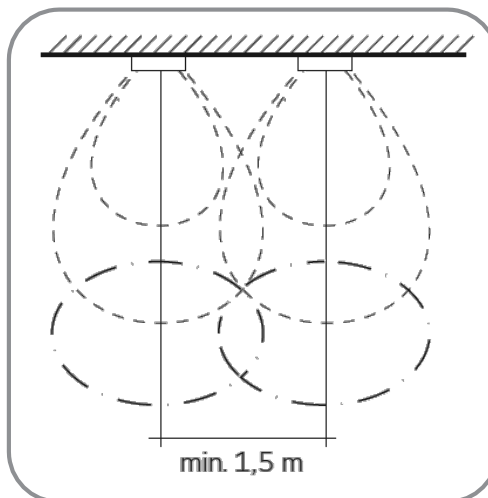
Wiring type and cross section

Stranded wire with ferrule or solid wire up to 1.5mm² may be used for wiring. Strip 8mm of insulation from the cables to ensure perfect operation of the push-in terminals. Use one wire for each terminal connector only.

wire preparation:
0.75 - 1.5 mm²



Minimum spacing for further sensors



Functions and setting up

Setting the detection area

The detection area can be restricted to prevent the lighting system being switched on unnecessarily, as would be the case if the area were too large. The detection area indicates the diameter within which motion is detected.

	1	2	3	Sensitivity
I	●	●	●	100 % (default)
II	○	●	●	75 %
III	○	●	○	50 %
IV	○	○	●	30 %
V	○	○	○	10 %



DIGITAL LUMINAIRE SENSOR

Setting the switch-off delay

To prevent the lighting system being switched on and off unnecessarily you can set a switch-off delay. The delay starts after the last motion in the detection area. If a further motion is detected in the detection area during this delay then the delay is retriggered. At the end of the delay the light will be switched off or the corridorFUNCTION is started.

	4	5	6	Hold time
I	●	●	●	5 s (default)
II	●	○	●	30 s
III	●	○	○	1 min
IV	○	●	●	5 min
V	○	●	○	10 min
VI	○	○	●	20 min
VII	○	○	○	30 min

Setting the daylight threshold value

A threshold value can be set to prevent the lighting system from being switched on when there is already adequate illuminance. The threshold value indicates the illuminance value below which detected motion causes the lighting system to be switched on.

	7	8	9	Daylight sensor
I	●	●	●	Disable (default)
II	○	●	●	50 Lux
III	○	●	○	20 Lux
IV	○	○	●	5 Lux
V	○	○	○	2 Lux

NOTE:

-To ensure the sensor switches on in conjunction with the corridorFUNCTION you should set the threshold value to I = Disable.

If the threshold value is disabled the sensor will always switch on..

corridorFUNCTION

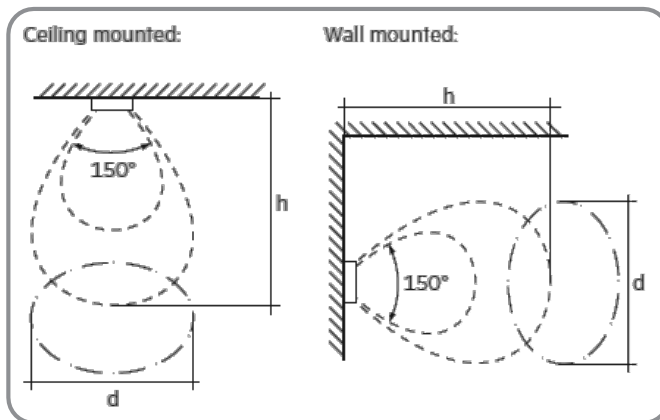
The corridorFUNCTION can be activated by applying a voltage of 230V for 5 minutes at the switchDIM connection of the control gear or via corridorFUNCTION Plug.

Note: To apply a voltage of 230V for 5 minutes at the switchDIM input of the control gear the sensor must detect motion for more than 5 minutes or a switch-off delay longer than 5 minutes must be set.

Start up behavior

20 seconds after mains is connected to the sensor, the sensor is ready and indicates this by switching on the green LED.

Motion detection



h	d
0.5m	0.5m
1.0m	1.0m
1.5m	2.0m
2.0m	4.0m
2.5m	6.0m
3.0m	7.0m
3.5m	6.0m
4.0m	5.0m
4.5m	4.0m
5.0m	3.0m

Diameter of the detection cone as a function of height at maximum detection area without taking objects in the room into consideration. Stationary objects (walls, tables, floor-standing luminaires, etc.) located in the direct view of the sensor change the characteristics of the detection area. The mentioned values are typical minimum values depending on the environment and application the detection area may increase.

Detection sensibility

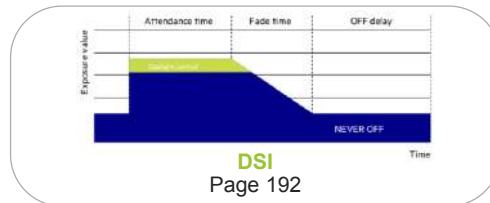
Optimized for detection of pedestrians with a speed of 0.5 – 1.5m/s corresponds to 1.8 – 5.4 km/h. Depending on the Application and environmental conditions the maximum detectable speed of object may vary.

Miscellaneous

Additional information

Additional technical information at www.tridonic.com → Technical Data
 Guarantee conditions at www.tridonic.com → Services
 Life-time declarations are informative and represent no warranty claim.
 No warranty if device was opened.

DIGITAL SIGNAL INTERFACE



TRIDONIC DIGITAL SIGNAL INTERFACE

Lighting Automation and Controls

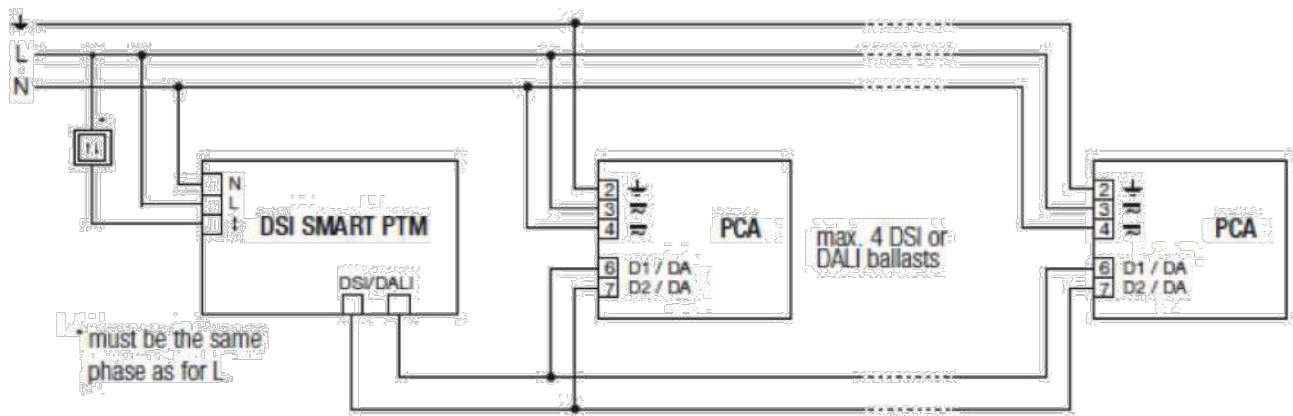
DSI

DSI (Digital Serial Interface) enables DSI control gear to be controlled. The DSI line can be wired separately via a two-core cable or together with the mains cable in a five-core cable. Communication is not impaired by the mains cable. In contrast to DALI, there is no individual addressing of the ballasts with DSI.

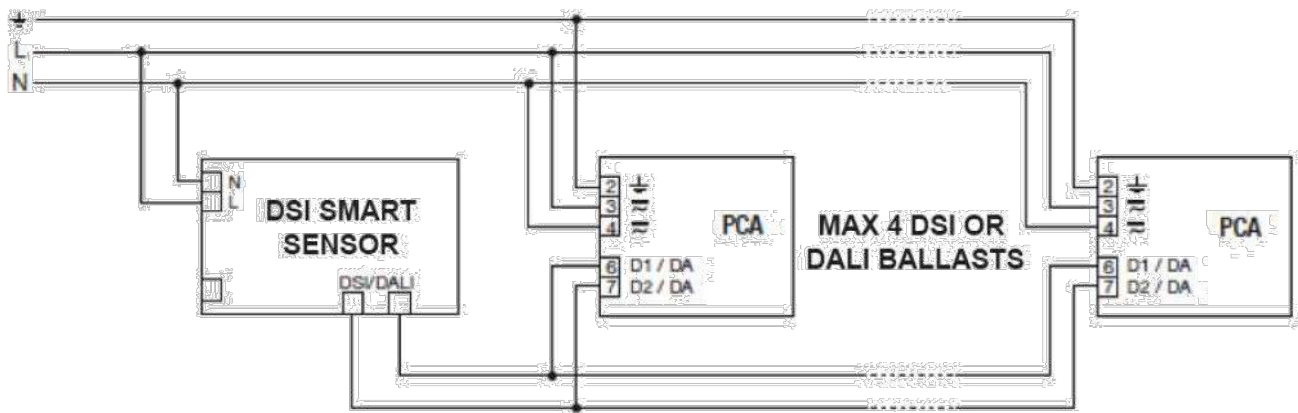
DSI offers a series of benefits:

- DSI allows for simple control of up to four luminaires from one sensor. The sensor is programmed for daylight harvesting and presence detection, to the required light level and occupancy time
- Light levels can be set at a value of 1 to 100 with occupancy time from 1 minute to 60 minutes
- Wiring: Simple wiring with five pole standard cables and line length of up to 250 metres
- Wiring: Polarity-free control lines can be used for mains and control lines
- Wiring: Multiple wiring possibilities (star, series and mixed wiring)
- Unaffected by electrical interference: Uniform light level from the first to the last light source
- Reverse polarity protected connection: can be connected with any polarity

Wiring diagram for DSI-SMART PTM (Interface, for push to make dimming)

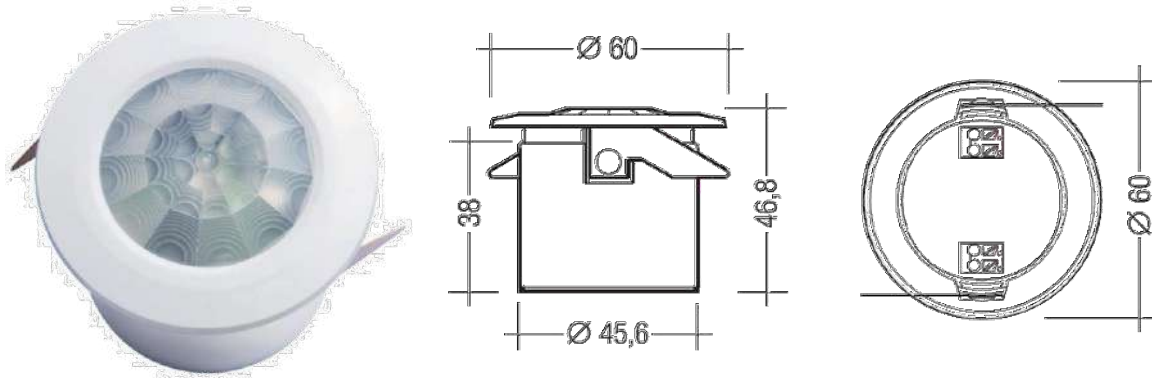


Wiring diagram for DSI-SMART PTM (Sensor, for daylight harvesting)

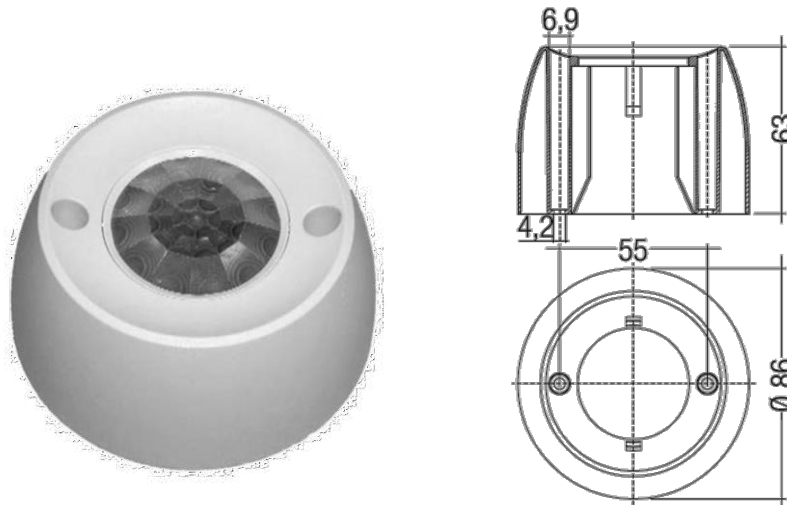


TRIDONIC DIGITAL SIGNAL INTERFACE

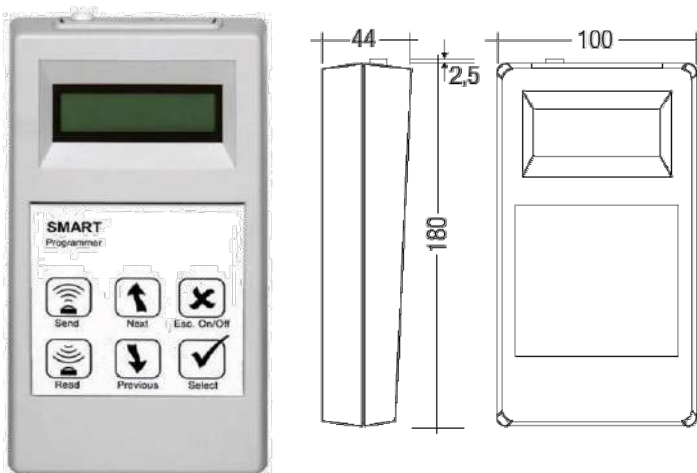
DSI Smart PTM Flush Sensor



DSI Smart PTM Surface Sensor

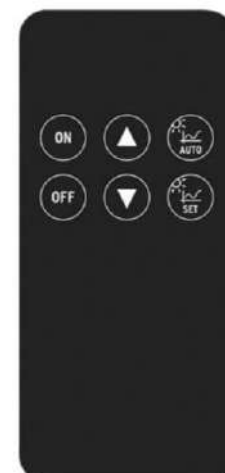


DSI Smart Programmer



This device is used to program the sensors for daylight harvesting and occupancy time.

Remote Control IR6 - 86.5 x 40.5 x 7.2mm



This device can override the ceiling sensor to allow manual dimming up and down.

DIGITAL ADDRESSABLE LIGHTING INTERFACE



TRIDONIC DALI

DALI standard

DALI (Digital Addressable Lighting Interface) is an interface protocol for digital communication between electronic lighting equipment.

The DALI standard was developed by Tridonic together with renowned manufacturers of operating and control equipment. Today, these manufacturers belong to the DALI Activity Group which promotes the use and further development of DALI.

The DALI standard is defined in IEC 62386. A test procedure standardized by the DALI Activity Group ensures compatibility between products from different manufacturers. Tridonic products have undergone this test and meet all the requirements. This is indicated by the logo of the DALI Activity Group on the device.

The agreement by the lighting industry to adopt a common protocol has opened up a virtually unlimited number of options. With the right choice of individual DALI components an extremely wide range of requirements can be met, from operating a simple light switch to lighting management systems for entire office complexes with thousands of light sources.

Dali offers a series of benefits:

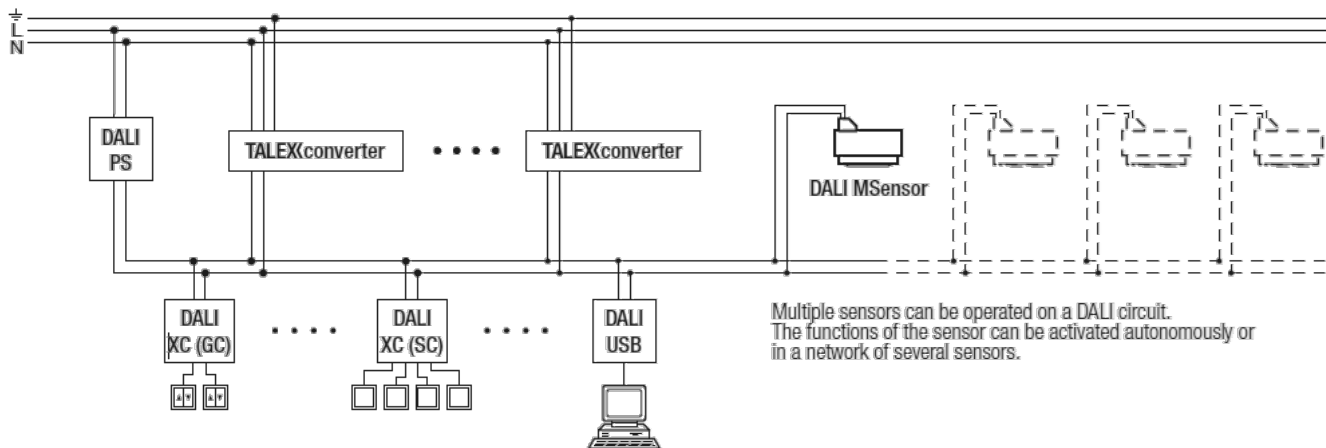
- DALI line: 64 LED Driver can be grouped to a line
- DALI groups: Every LED Driver can be attributed into 16 groups
- Addressability: All LED Driver are individually addressable
- Grouping: Possible without complicated rewiring
- Programmability: Individual programmability makes it possible to use functions which transcend the DALI standard
- Monitoring: Easily possible thanks to status feedback
- Wiring: Simple wiring with five pole standard cables and a cable length of max. 300 metres
- Wiring: Polarity-free control lines can be used for mains and control lines
- Wiring: Multiple wiring possibilities (star, series and mixed wiring)
- Unaffected by interruptions: All luminaires receive the same, unaffected digital signal and dimming level
- Similar light level from first to last luminaire

Technical data of a DALI line:

DALI voltage: 9.5 V - 22.4 DC

- Maximum DALI system current: max. 250mA
- Data transfer rate: 1200 Baud
- Maximum line length: up to 300 m (for 1.5 mm²)

WIRING DIAGRAM

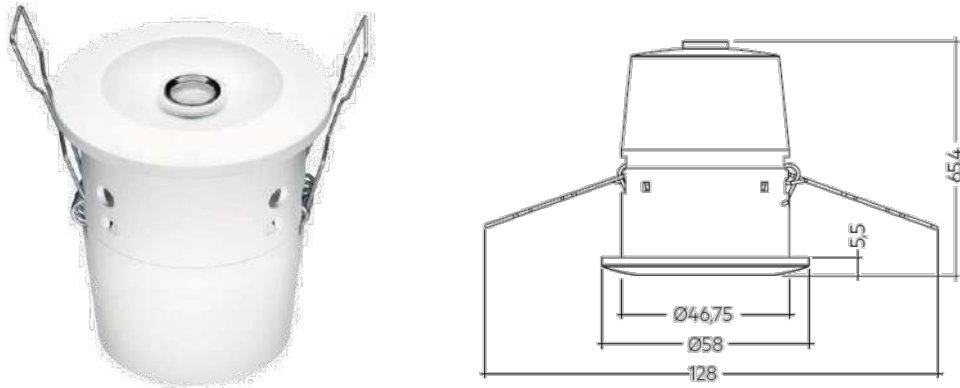


TRIDONIC DALI

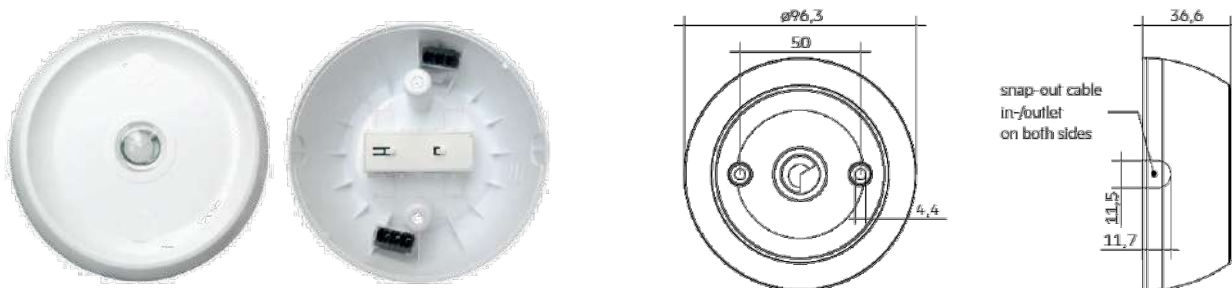
MSensor 5DPI 14f White and Black



Msensor 5DPI 14rc



ACU Sensor Housing 14rs IP20





basicDIM Wireless

The intuitive path towards wireless luminaire communication



Bluetooth Wireless control technology allows versatile and processional interaction with all luminaires within an area - fully intuitive and with no additional wiring required.

The most robust, cost effective and future proof wireless lighting control solutions.

Hassle-free wireless

Up to 127 light points can be conveniently controlled via Bluetooth: switching on and off as well as dimming functions are just as simple as grouping luminaires and creating lighting settings. Tunable white luminaires change their colour temperature to suit the user and the direct and indirect light content are simple to adjust. All the elements for integrating sensors are also in place.

Bluetooth offers a series of benefits:

- Economical wireless alternative to DALI.
- A wireless lighting control solution for existing installations.
- All programming, commissioning and user control is done through your smart devices such as cell phones and tablets. iOS and Android compatible.
- Up to 127 Bluetooth devices can be controlled through the following scenarios:
 - o Individual luminaire control
 - o Luminaire group control
 - o Multiple scene selections
 - o Colour changing and hue selection
 - o Tunable white light control (circadian rhythm)
 - o Scheduling using calendar and time
- Bluetooth is not an internet dependent system

LASCON[®] BLUETOOTH



APPS



SWITCHES



REMOTE ACCESS



SENSORS

Bluetooth Low Energy

The Casambi solution is based on the state-of-the-art wireless technology. All modern smartphones, tablets and smart watches are using this technology.

Connected

The Casambi devices are connected when needed, without Internet connection. All Casambi modules automatically create a wireless mesh network.

Easy to setup

The system is intuitive. You do not need any new wiring, switches, devices or networks. Plug in the lighting fixture and pair it with your phone or tablet. No other configurations by a professional technician would be needed, just use the app.

Easy to use

Use your app or wall switches for dimming, changing colour, colour temperature, controlling one scene with multiple luminaires or switching through multiple scenes.

Made in Europe



suitable for Trailing-Edge Phase



suitable for Dali or 1/10V drivers



suitable for PWM output for Linear LED 24V



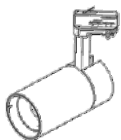
suitable for Trailing-Edge with push button function

A UNIQUE SOLUTION TO CONTROL MOST LED LIGHTING APPLICATIONS

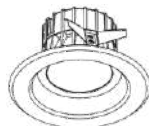


to connect 4 functions push button

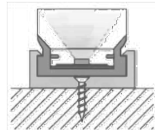
Suitable for Trailing-Edge Phase, Dali, 1/10V drivers, PWM for Linear LED



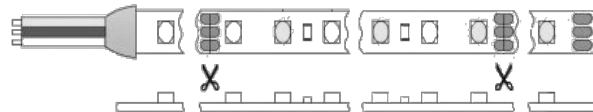
SpotLED



Downlight



Linear



StripLED

LASCON® BLUETOOTH

APP connected with Bluetooth Low Energy



Intuitive Apps

Easy setting and usage. Take a picture of the room and identify lights



Use also switch or push-button

CASAMBI can be used both with app and wall switch to control light.



Xpress

Xpress is a device that controls CASAMBI enabled luminaires easily and wirelessly. After configuration of the buttons these will control the assigned scene, lamp or group.

User-friendly

Control the spotlights through an intuitive user interface, directly from your smartphone or tablet.

Tap (ON/OFF)

Pan left/right (Dim up & down)

Pan up/down (Adjust colour temperature)

Push & hold (Opens all luminaire controls)

- ▶ **User friendly basic gestures**
Tap to turn on/off, pan left/right to dim, up/down to change color temperature, hold on to change the color and save colors to the palette.
- ▶ **Find your lamp easily with a picture**
Just click on the pictures previously saved to control your lamps.
- ▶ **Remote access feature**
Control CASAMBI enabled luminaires remotely through internet access.

LASCON[®] BLUETOOTH

Lighting can be managed by traditional wall switches. CASAMBI also developed Xpress, a wireless control panel.

Switch

Classic Stich or Push button



Wall Switch
To start the dimming process quickly, switch OFF and ON the liahr fixture. After flicking the switch, the dimming process will start. Once the light has reached the desired brightness level just flick the switch quickly again. The last brightness state will be applied for next time.

Push Button
Just press and hold the push button and the light will start to dim up/down until the desired brightness level. For ON/OFF, just a quick push of the button is needed.

Xpress Switch
Xpress device that controls CASAMBI enabled luminaires easily and wirelessly. Configuring the buttons will not continue the assigned scene, lamp or group.

Installation

Wireless, no need for any switch, device or network

- Choose the right CASAMBI module. It is available in phase cutting, 1-10V or Dali. You can also manage RGB (W) or tunable white with CASAMBI.
- Due to his small size it can fit in any luminaire or into the ceiling.
- The Bluetooth self-organizing wireless mesh network can control a large number of fixtures from any point.
- All settings are done through the free CASAMBI app (Apple App Store, Google Play Store.)
- The maximum distance is 30m for indoor and 50m for outdoor applications. (It is recommended to test the communication if unsure about the possible disturbances)
- Lighting can also be managed by traditional wall switches.



Security

- Network can be shared through a password.

Stability

- Solving interference issues, Bluetooth is more robust than wifi and Zigbee. It uses. Frequency Hopping Spread Spectrum (FHSS) that hops between channels to counteract interference problems.

No gateway

- Unlike DALI applications, no gateway module is required between the control device and the network.

No single point failure

- The system is self healing and in constant synchronization. Any unit can go offline and catch up from others when they return back online.

Mesh Button

Mesh Button

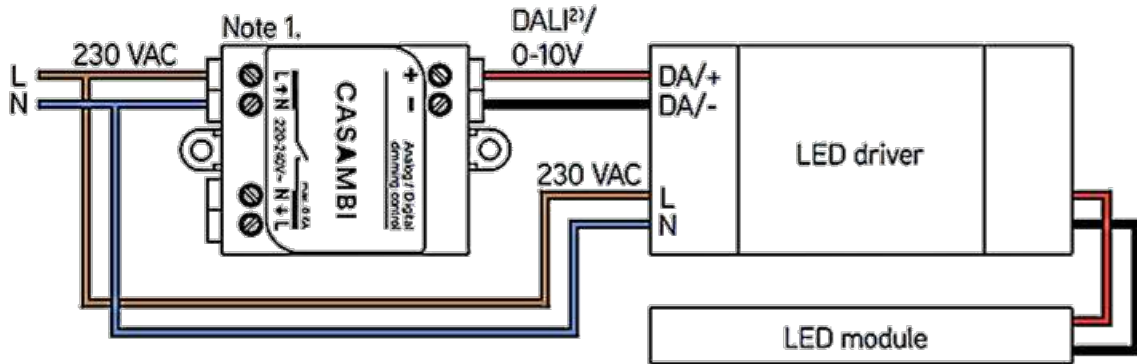
LASCON[®] BLUETOOTH



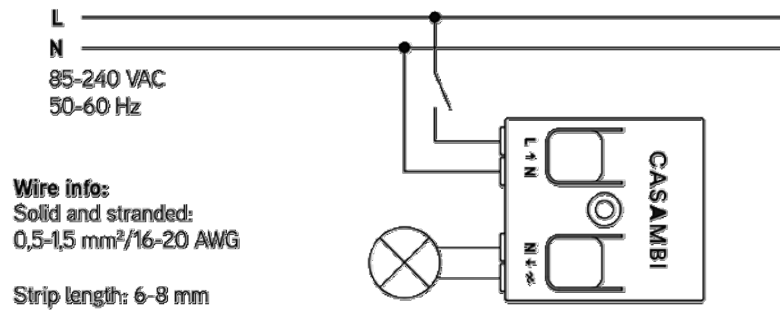
Connection Diagram

For constant current in DALI or 1/10V
Product ref: CBU-ASD

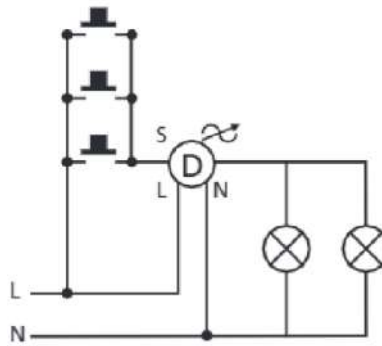
▶ Max 50W and 6 light sources



For phase-cut dimmable drivers
Product ref: CBU-TED

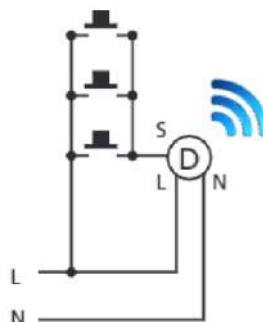


For phase-cut dimmable driver with push button
Product ref: Vadsbo LD220WCM



Push Buttons

Product ref: Vadsbo LD220WCM



LASCON[®] BLUETOOTH



Configuration

Unlike Dali Interfaces which need important setup and configuration by an expert, CASAMBI networks can be set up easily and directly with your smartphone or tablet. Lamps managed with CASAMBI are automatically detected and grouped into a network.

- ▶ Free interface and work on iOS and Android.
- ▶ All modules and switches managed by CASAMBI appear on the network



- ▶ Identify modules or switches* using a picture to easily find any lamp.

With your smartphone, take a picture of the luminaire. The picture will serve to easily find the light on the app.

*Assign a function for each switch



Create group

Lamps can be grouped to one switch via the app.

Create scene

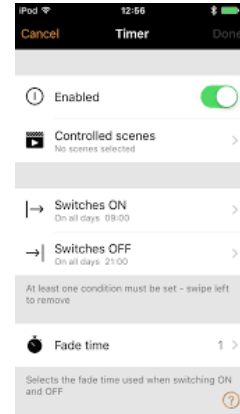
Scenes help you setup an ambience in your space. Define the desired light level and group of lamps. Scenes also enable you to create animations, fading from scene to scene.



LASCON[®] BLUETOOTH

▶ Timer

Create a list of timers that will turn scenes or animations on and off over time. Examples: wake up light, set the living room lights to automatically turn on in the evening.



▶ Functions

- Switch on/off
- Dim 1 luminaire
- Control a group/a scene



DISCLAIMER

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