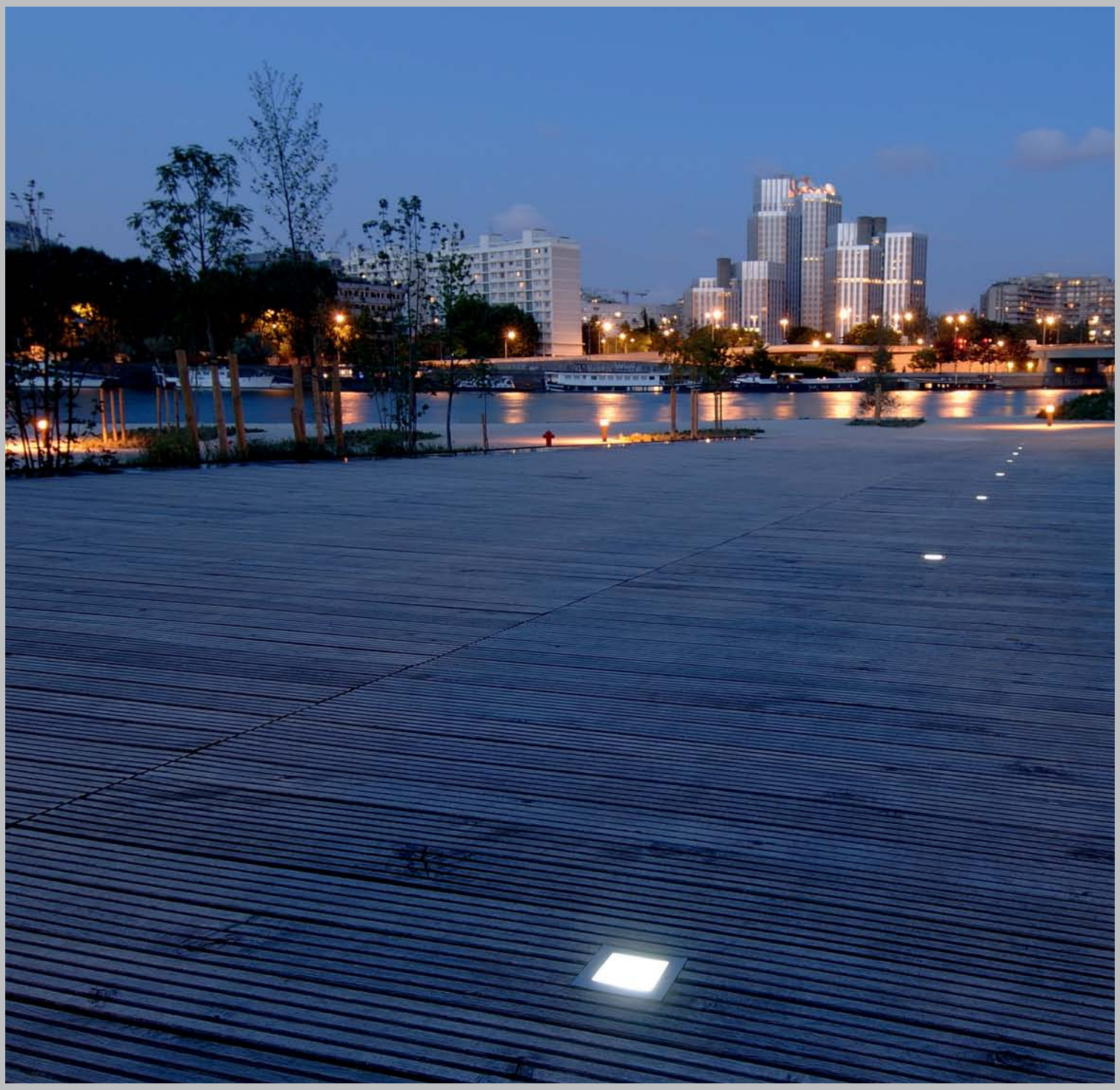
THORN

LED Lighting
for Smart Buildings



LED Lighting
for Smart Buildings

In any study of smart building design the factor of lighting, and LEDs in particular, features prominently - after all most of a building's running cost is accounted for by the electricity used for lighting.

LED lighting not only limits energy demand during peak consumption and limits carbon-dioxide emissions, but brings improved optical performance, greater flexibility and better comfort.

All these benefits mean that LEDs have rapidly become the preferred technology for those involved in lighting intelligent, energy efficient buildings.









Outdoor or indoor lighting with LED technology offers the ultimate solution. No other light source allows you to improve optical performance while reducing energy consumption and maintenance.

Why Thorn LED Lighting?

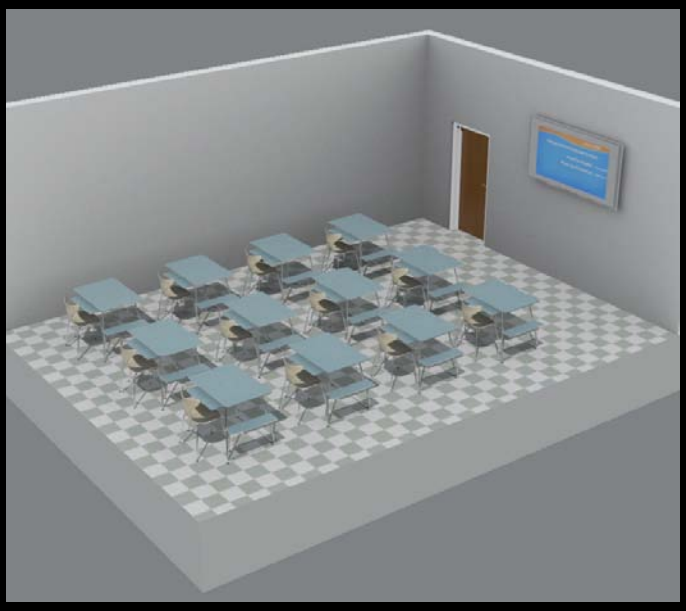
As a trusted global supplier of professional outdoor and indoor lighting with integrated controls, we have years of experience in luminaire development and an extensive LED range.

Leveraging Zumtobel Group's research and development facilities, we actively work to raise lighting standards and are uniquely placed to combine the latest light source technology with our specialist expertise in optical and luminaire design.

When you're lighting smart buildings with our products you can achieve a solution where aesthetics, optical performance, energy consumption and maintenance are all in perfect balance.

Why LED Lighting?
High optical performance
Compact light source with precise beam control
Instant and full light output
Low wattage for energy savings
Long operating life (>50,000 hours) and reduced maintenance
Future-proofing via replacement LED modules
No UV or IR radiation
Zero mercury
Choice of colours and colour temperatures
Dynamic colour change
0 – 100% dimming (which also improves LED lifetime further)
Physical robustness

Contents







Introduction

Performance. Efficiency. Comfort. 06
15 easy ways to save energy 08
Building areas 10

Application areas

Entrance hall 12
Reception 14
Corridor/staircases 16
Circulation areas 18
First aid room 20
Toilets 22
Restaurant/canteen 24
Kitchen 26
Conference room 28
Meeting room - small 30
Meeting room - large 32
Office - small 34
Office - medium 36
Office - open plan 38
Classroom/training room 40
Lecture theatre 42
Warehouse/storage rooms 44
Loading bay 46
Cycle bay 48
Car park 50
Building surround 52
Pathways 54
Outdoor stairs 56
Utility areas 58

New Products

Menlo³ Circular LED 62
Quattro LED 64
Elevation LED 66
Specline LED 68

Leopard LED 70
Escort LED 72
Novaline LED 74
Danube LED 76
Loire LED 78
Thames LED 80
Club LED 82

ImpactForce II LED 84
CorrosionForce II LED 84
AquaForce II LED 86

Voyager E LED 88

Satin 90
Band² 94
E/Fact LED 98
Mica Slim LED 104

Dyana LED 110
Christian IV LED 112

Lighting Controls

Sensa Range 114
Sensa TSC 116

Performance. Efficiency. Comfort.

LEDs are the essence of good lighting design, offering performance, efficiency and comfort

Performance

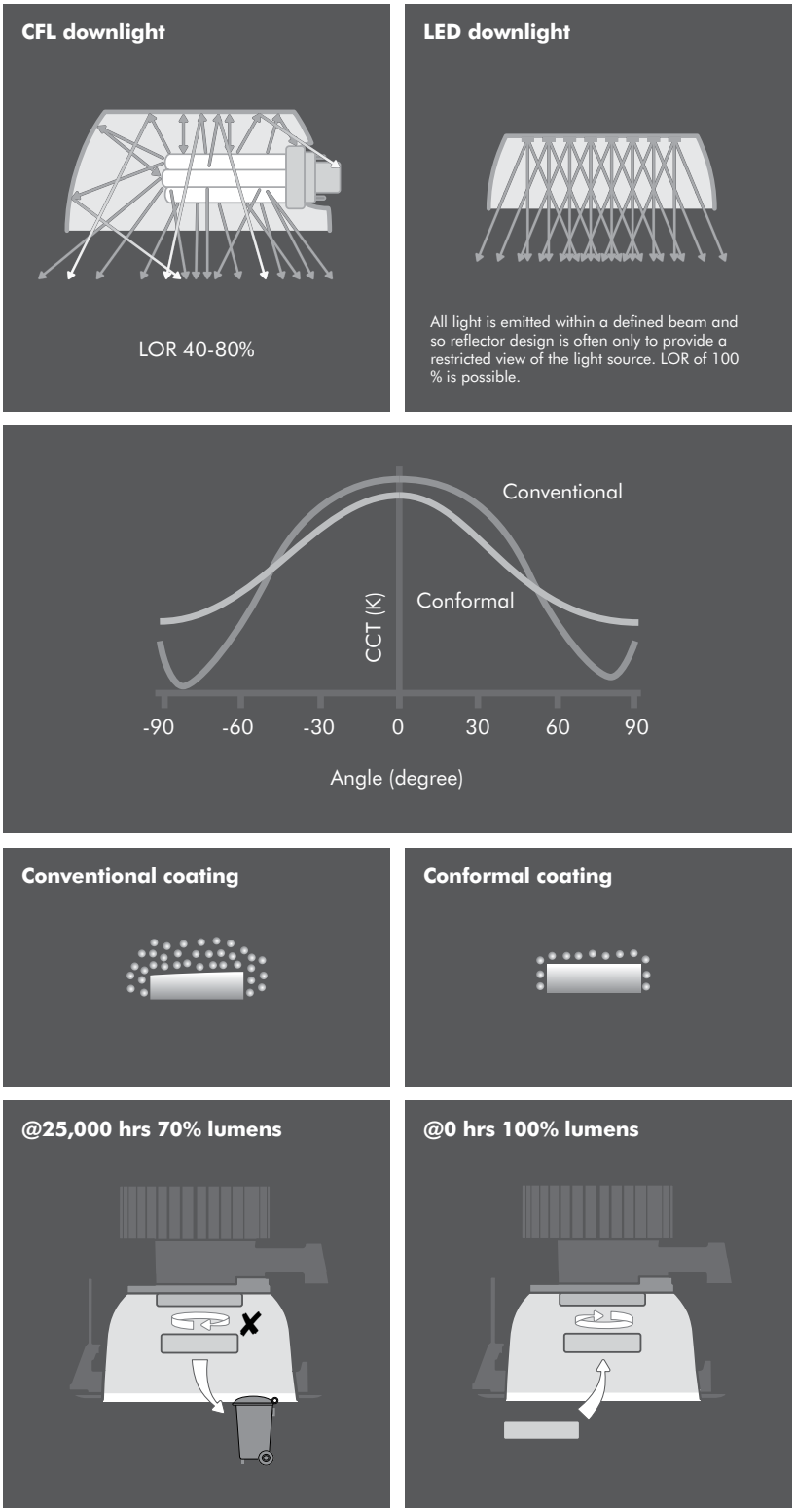
Superior optical control and task illuminance

One of the key differentiators of LEDs is that their light can be directed in a specific direction. This enables light output ratios (LORs) as high as 100 per cent to be achieved, thus delivering good task illuminance. In contrast the nature of incandescent, fluorescent and discharge luminaires, where light is emitted in all directions, means that significant amounts of light never leave the luminaire or are wasted and as a result, LOR's as low as 40 to 80 per cent are common.

With their superior optical control LEDs can direct light precisely to the intended location. This ability to fine tune the light distribution can make work tasks easier to see and achieve, improve clarity and safety, and reduce mistakes.

Enhanced colour rendering

Improvements in colour rendering have added to the exceptional performance of LEDs. Many Thorn LED products, such as Prospector spotlights, have excellent colour rending index values (Ra>90), making them ideal for applications requiring high colour accuracy: restaurants, retail outlets, supermarkets and museums. LEDs emit neither IR nor UV radiation, thus reducing any concerns regarding the discolouration and deterioration of sensitive objects and merchandise.



Efficiency

Greater energy control

Accounting for around 19 per cent of total world energy use, lighting is a major source of energy consumption but also offers a significant opportunity to reduce energy usage and carbon emissions. The ease with which electronic based LED technology combines with digital dimming and lighting controls however provides increased efficiency and less energy consumption, providing the right amount of light and only where and when it is needed. LEDs are renowned for high optical performance with low energy consumption. Replacing old fluorescent Chalice downlights for example with Chalice LED could reduce energy consumption by 50 per cent while maintaining light quality. Similarly, replacing a tungsten halogen downlight with a Lightstream 2 luminaire could reduce energy consumption by 86 per cent while maintaining light quality.

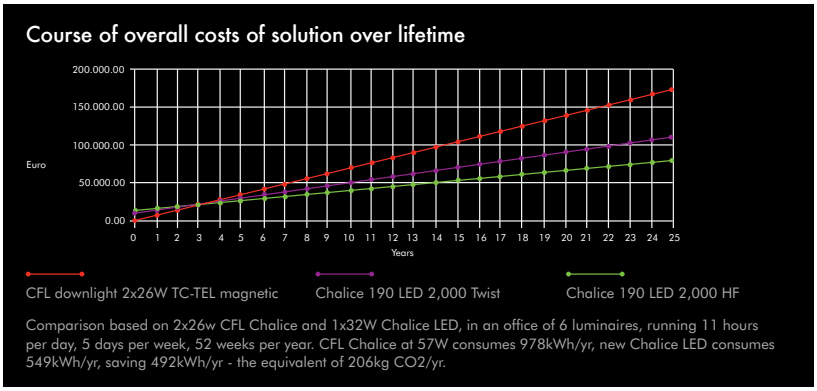
Long life and reduced maintenance

Good thermal design also means many LEDs have a 50,000-hour expected lifetime*, which for some lamps can extend to 120,000-hours in the right environment with dimming. A longer life means less maintenance.

The increasing availability of replacement LED modules, such as that used in the Chalice LED (Twist versions), mean that the whole luminaire does not need to be replaced when the LED reaches its rated life*. This makes the lighting system easy to maintain and upgrade, as well as being more sustainable.

Compact profile

Another major advantage of LEDs is their small size which can reduce ceiling void depths and thus ceiling heights. This is of major interest for multi-storey smart buildings as it can significantly reduce material usage. It also leads to more innovative and imaginative product designs.



Comparison based on 2x26w CFL Chalice and 1x32W Chalice LED, in an office of 6 luminaires, running 11 hours per day, 5 days per week, 52 weeks per year. CFL Chalice at 57W consumes 978kWh/yr, new Chalice LED consumes 549kWh/yr, saving 492kWh/yr - the equivalent of 206kg CO2/yr.

Comfort

Lighting to suit

New phosphor-based LED luminaires such as Chalice and Base LED downlights offer softer, low glare lighting for enhanced comfort. LED luminaires such as D-CO LED and Lightstream 2 however also enable you to add sparkle, creating a completely different environment.

We offer most LED solutions in a range of correlated colour temperatures (CCT), which helps in creating the right mood for your space - a low CCT can imply cosiness, a high CCT can suggest physical energy. LEDs also have the ability to dynamically change colour.

Colour stability

This is consistently high. For example the Base LED downlight delivers warm white light by using the superior technique of mixing the light from yellow and red LEDs, rather than merely coating blue LEDs with a yellow phosphor. Such active colour management maintains colour consistency over the life of the product.

No flicker

All our LED products are supplied with electronic drivers. These eliminate flicker and improve user comfort by reducing annoyance and headaches.







econtrol

Making it easier for you to understand, specify, install and maintain good quality, energy efficient lighting.

Sustainability

From producing fully recyclable products to calculating the carbon footprint of our products, reducing packaging to reducing journeys, using recycled material to avoiding toxic substances, sustainability is at the heart of what we do.

Optical Control

An important contributor to energy saving and efficiency, providing light where and when it is needed. Think Orus, Clan and Menlo[3].

Lighting Control

One of our key specialist areas, including outdoor photocells, traffic detection, indoor daylight linking, dimming and presence/absence detection. Think Sensa and Telea.

Migration

Identifying and moving away from inefficient lighting.

Light source

Changing discharge lamps for fluorescents, and fluorescents for LEDs, while ensuring the correct lamp for the environment.

15 ways to make energy efficient lighting easy

When considering energy efficiency and lighting it is important that it is not considered in isolation. A lighting installation has a basic requirement to provide a sufficient amount of light to allow a task to be performed efficiently and safely. Requirements for this are given in standards such as EN 12464 (Lighting of workplaces), EN 13201 (road lighting), EN 1838 (emergency lighting), etc. In addition, as well as providing good task illumination the lighting installation should provide light of a good enough quality to provide a pleasant and fulfilling environment for the occupants of a space. The ideal is to provide these two aspects in as energy efficient way as possible.

Energy efficiency is a complex set of interactions and relationships linked to technology, physical environment, social behaviour and work requirements. However we can consider energy efficiency may generally be split into four main areas:

Technology



Lamp efficacy
How efficiently a lamp converts electricity into light (lm/W)



Ballast classification
Controls the electricity supply to the lamp (Energy Efficiency Index EEI)



Luminaire distribution
Light is controlled and emitted from a luminaire using optics which bend and shape the light to the correct location



System efficacy
The combination of optical and thermal control within the luminaire (luminaire lm/W)

Control



Presence/Absence
Presence: Lights automatically turn on and off with movement.
Absence: Lights automatically turn off and have to be manually switched on.



Daylight
Artificial lightingresponds to the natural light conditions



Constant illuminance
A function designed to produce correct lighting levels for the duration of the maintenance period



Task/Scene setting
Allows the user to set scenes and adapt the lighting to different tasks



Timed off
Automatic cut-off can be installed to turn all lights off during unoccupied hours

Application

Task lighting
Lighting the task areas with the correct amount of light

Zoning of lighting
Lighting is zoned according to occupancy patterns or window location

Maintenance schedule
Maintenance must be performed in response to product age, performance and environment

Waste light
Any light which does not hit the intended target is waste light

Environment

Reflectance
Light is reflected from the surface within the space

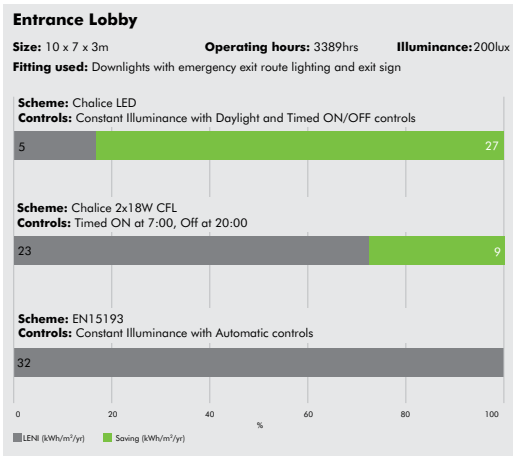
Visible smart metering
Results of actions can be quickly seen as increased or decreased energy use

Energy Efficiency Graphs

LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active and the savings that may achieved through the use of lighting controls. It also takes into account the energy required by the controls when the lighting is inactive (the standby load) and the energy required to keep emergency lighting operational (battery charging load)

EN15193 provides a table of benchmark LENI values for a variety of applications and in the following pages graphs are shown comparing possible real solutions with these benchmark figures.

The example on the right gives a detailed explanation of the information that may be found on the graphs displayed throughout this book.



Typical installation details

Saving over the EN15193 scheme using the best through life cost scheme with LED technology and the most appropriate controls for the application

Saving over EN15193 scheme using the lowest capital cost installation with minimal controls (a typical base level scheme)

Base scheme is always according to EN15193 Class 1 (lowest energy requirement) in the most appropriate application and with appropriate controls

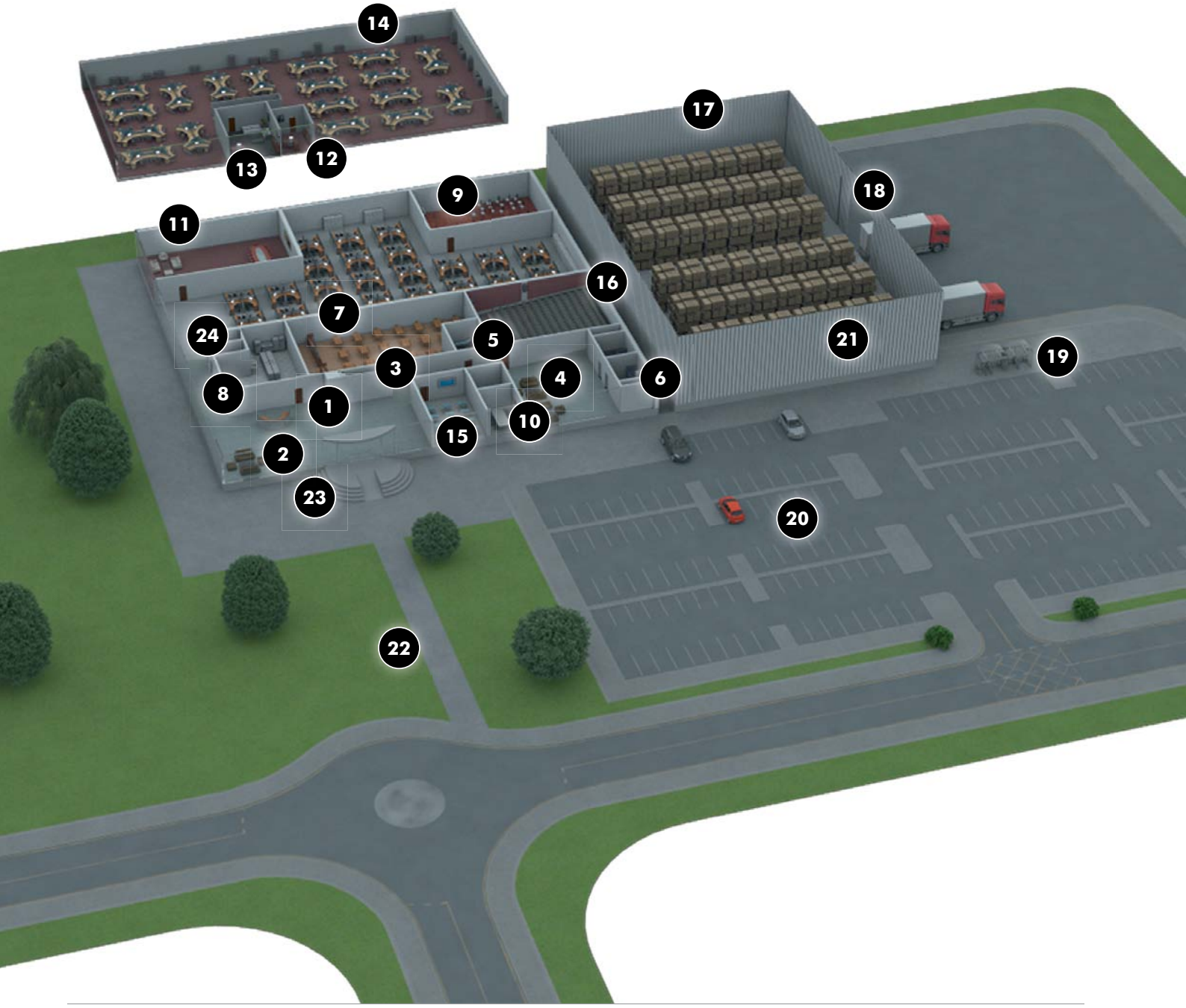
Building areas

A guide to Thorn LED products and their preferred, designated environments.

This brochure illustrates some of the more imaginative ways in which the wide range of Thorn LED products can be used in offices, schools, shops, hotels, hospitals and other energy intensive industries.

It examines a series of spaces commonly encountered in a smart building, extending from the entrance hall to the back of house kitchen, giving you ideas on the most suitable LED lighting equipment. But, it's not just a matter of supplying you with products; well before that happens it's essential that you get the best possible design advice on how to select them and apply them to your best advantage.

That's where our 15 ways to make energy efficient lighting easy icons and good practice pointers come in. The consideration of such information forms an integral part of the design process to yield the most appropriate LED lighting solution.



1 Entrance hall

- Cruz 160 LED
- Chalice 190 LED
- Base LED
- Voyager LED Series
- Voyager Sigma

2 Reception

- Menlo³ Circular LED
- Planor LED
- Base LED
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Glacier II LED
- Prospector LED
- Tidon LED
- Voyager LED Series
- Voyager Sigma

3 Corridor/staircases

- Leopard LED
- Novaline LED
- Danube LED
- Loire LED
- Thames LED
- Voyager E Bulkhead
- Voyager E Exit
- Cruz 160 LED
- Chalice 190 LED
- Base LED
- Base LED Junior
- D-CO LED Downlights
- D-CO LED Wall recessed
- Lightstream 2

4 Circulation areas

- Quattro LED
- Elevation LED
- Specline LED
- Club LED
- Novaline LED
- Danube LED
- Loire LED
- Thames LED
- Cruz 160 LED
- Chalice 190 LED
- Base LED
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Voyager LED Series

5 First aid room

- Elevation LED
- Base LED
- Base LED Junior
- Voyager LED Series

6 Toilets

- Leopard LED
- Loire LED
- Thames LED
- Danube LED
- Cruz 160 LED
- Chalice 190 LED
- Base LED
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Voyager LED series

7 Restaurant/canteen

- Quattro LED
- Elevation LED
- Cruz 160 LED
- Chalice 190 LED
- Base LED
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Tidon LED
- Glacier II LED
- Prospector LED

8 Kitchen

- ImpactForce II LED
- CorrisonForce II LED
- Voyager E Bulkhead
- Voyager E Exit
- Cruz 160 LED
- Base LED Junior
- Lightstream 2

9 Conference room

- Menlo³ Circular LED
- Quattro LED
- Elevation LED
- Base LED
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Tidon LED
- Glacier II LED
- Voyager Sigma

10 Meeting room - small

- Menlo³ Circular LED
- Quattro LED
- Elevation LED
- Specline LED
- Equaline LED
- Planor LED + wall
- Base LED
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Tidon LED
- Glacier II LED
- Prospector LED
- Voyager LED Series
- Voyager Sigma

11 Meeting room - large

- Menlo³ Circular LED
- Quattro LED
- Elevation LED
- Specline LED
- Equaline LED
- Planor LED + wall
- Cruz 160 LED
- Chalice 190 LED
- Base LED
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Prospector LED
- Glacier II LED
- Voyager LED Series
- Voyager Sigma

12 Office - small

- Menlo³ Circular LED
- Quattro LED
- Elevation LED
- Specline LED
- Equaline LED
- Planor LED + wall
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Tidon LED
- Glacier II LED
- Prospector LED
- Voyager LED Series

13 Office - medium

- Menlo³ Circular LED
- Quattro LED
- Elevation LED
- Specline LED
- Planor LED + wall
- Equaline LED
- Cruz 160 LED
- Chalice 190 LED
- Base LED
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Prospector LED
- Glacier II LED
- Voyager LED Series
- Voyager Sigma

14 Office - open

- Menlo³ Circular LED
- Quattro LED
- Elevation LED
- Specline LED
- Voyager E Exit
- Equaline LED
- Planor LED + wall
- Cruz 160 LED
- Chalice 190 LED
- Base LED
- Base LED Junior
- D-CO LED Downlights
- Lightstream 2
- Prospector LED
- Voyager LED Series
- Voyager Sigma

15 Classroom

- Elevation LED
- Quattro LED
- Equaline LED
- Planor LED

16 Lecture theatre

- Menlo³ Circular LED
- Elevation LED
- Voyager E Exit
- Cruz 160 LED
- Chalice 190 LED
- Base LED
- Voyager Sigma

17 Warehouse/storage

- ImpactForce II LED
- CorrosionForce II LED
- AquaForce II LED
- Voyager E Bulkhead
- Voyager E Exit

18 Loading bay

- ImpactForce II LED
- CorrosionForce II LED
- AquaForce II LED
- Voyager E Bulkhead
- Voyager E Exit

19 Cycle bay

- Leopard LED
- Escort LED
- Eyekon LED

20 Car park

- E/Fact LED (under trees)
- Mica Slim LED
- Dyana LED
- Christian IV LED
- Avenue D² LED
- Contrast LED
- D-CO LED Recessed (under trees)
- Avenue F LED
- Plurio LED
- Nella LED
- Oxane

21 Building surround

- Leopard LED
- Escort LED
- Danube LED
- Loire LED
- Satin
- Band²
- E/Fact LED
- Mica Slim LED
- Tea
- LineLED
- Avenue D² LED
- Eyekon LED
- Cesar LED
- Contrast LED
- Qba LED
- D-CO LED Recessed
- D-CO LED Flood
- Contrast Mini Pinspot LED
- Milo
- Band
- Avenue F LED
- Plurio LED
- Nella LED
- Alumet Stage LED
- Adelie
- Promenade LED

22 Pathways

- Escort LED
- E/Fact LED
- Mica Slim LED
- Dyana LED
- Christian IV LED
- Tea
- Via LED
- Jalon LED
- Avenue D² LED
- D-CO LED Recessed
- Avenue F LED
- Plurio LED
- Nella LED
- Alumet Stage LED
- Adelie
- Promenade LED

23 Outdoor stairs

- Leopard LED
- E/Fact LED
- Mica Slim LED
- Via LED
- Jalon LED
- D-CO LED Recessed

24 Utility areas

- Specline LED
- Quattro LED
- Leopard LED
- ImpactForce II LED
- CorrosionForce II LED
- AquaForce II LED
- Voyager E Bulkhead

NEW

COMING SOON

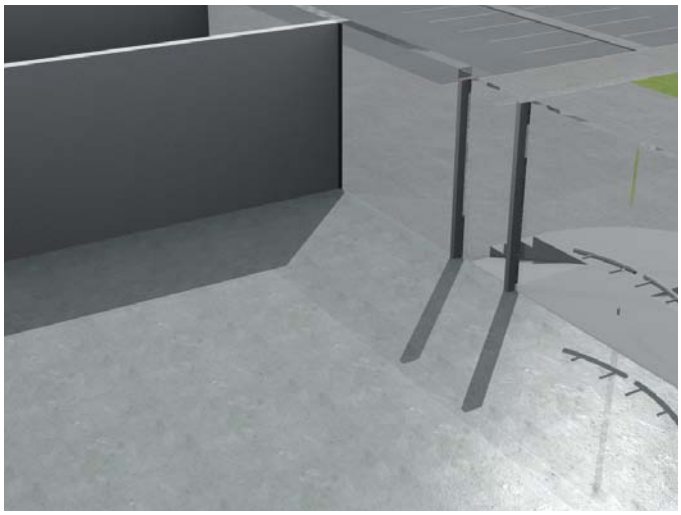
1 Entrance hall

Energy saving ideas

Creating the right environment

Entrances must be welcoming and friendly, whilst conveying attentiveness, allowing orientation to enable staff and visitors to find their destination. They also set the corporate image of the occupiers and lighting plays an important part in all these activities.

Our new LED based downlights allow owners to demonstrate their environmental credentials by providing efficient light (up to 79 Llm/W) of attractive colour rendering (up to 92 Ra) and appearance. What's more, they boast excellent lumen maintenance over a lifespan more than four times longer than compact fluorescents. Coupled with dimming and future proofing - in the form of a replaceable LED module version – they have fast become the technology of choice in smart buildings. With the range of optics and attachments the available ranges of downlights can provide excellent task illuminance whilst still lighting the face of visitors who may have informal discussion during a visit.



Taking control

Daylight - Ensure a balanced light transition from outside to inside and visa versa, a large variation in light will cause temporary blindness.

Scene Setting - An opportunity to create a positive first impression with the use of colour changing/ tuning to match the time of day or mood of the occasion.

Timed off - Consider use of timed off control when the building is empty.

Product range

For more information on your desired product please select from below:



Cruz 160 LED
www.thornlighting.com/CR16



Chalice 190 LED
www.thornlighting.com/CHLD



Base LED
www.thornlighting.com/BASE



Voyager LED Series
www.thornlighting.com/VYLD



Voyager Sigma
www.thornlighting.com/VSIG



Good practice

The main objectives are to orientate visitors and occupants with a clearly lit route and provide them with a transition zone from exterior to interior lighting levels. Take care to understand the wide range of tasks taking place which may include meet and greet, navigation, security, wheelchair access and so on. Avoid sharp cut-off lines from the lighting as they hinder communication and facial recognition. Signage, which may take various forms such as coloured lines, flooring or directional information boards should be enhanced wherever possible using additional luminaires.

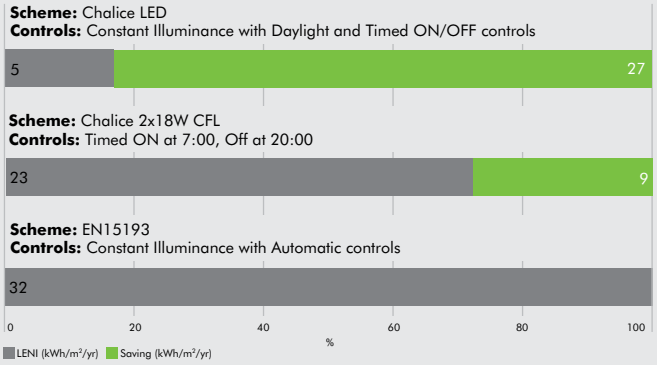
Any hazards, such as a change in floor level, should receive special consideration as should escape routes and emergency lighting.

Energy efficiency

Entrance Lobby

Size: 10 x 7 x 3m **Operating hours:** 3389hrs **Illuminance:** 200lux

Fitting used: Downlights with emergency exit route lighting and exit sign



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

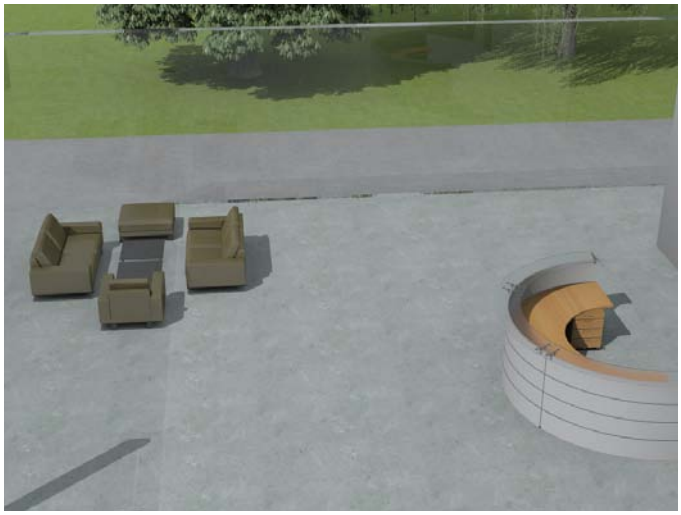
2 Reception

Energy saving ideas



Creating the right environment

In terms of interior design, reception areas often sit within the entrance hall and present a particularly challenging brief. Often requiring corporate branding they could convey an air of substance and calm or a touch of excitement and drama. Balanced with that, the visitor needs to be able to communicate easily with reception staff. The luminaires should be geometrically appropriate for the space. Our small LED luminaires, such as D-CO LED Downlights and Base LED Junior, enable unobtrusive installations while stylish Glacier II LED pendants and Tidon LED gimbals are ideal over reception desks - and Prospector LED spotlights provide UV free, high quality, directional light with no heat.



Taking control

Scene setting/task lighting - Consider task lighting and scene setting to optimise impact whilst enabling the receptionist to work with good light conditions.

Absence - Absence detection may be appropriate for meeting areas within the overall reception area.

Daylight - Where there is a significant contribution of natural light consider daylight linking.

Product range

For more information on your desired product please select from below:



COMING SOON

Planor LED

Menlo^3 Circular LED



Base LED
www.thornlighting.com/BASE



Base LED Junior
www.thornlighting.com/BASJ



D-CO LED Downlights
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Glacier II LED
www.thornlighting.com/GLCR



Prospector LED
www.thornlighting.com/PROL



Tidon LED
www.thornlighting.com/TIDN



Voyager LED Series
www.thornlighting.com/VYLD



Voyager Sigma
www.thornlighting.com/VSIG



Good practice

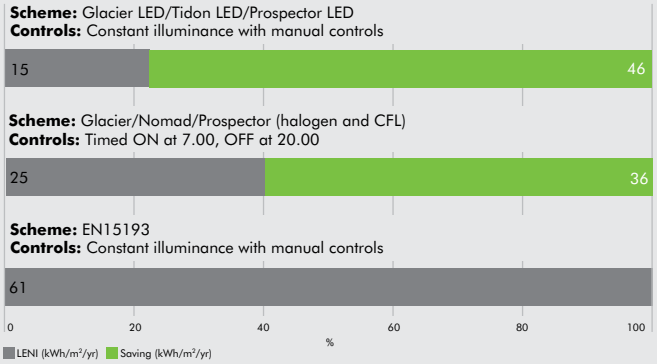
The aim here is to provide visitors with a visible first point of contact. Light naturally attracts people so a well-lit, welcoming, reception area and desk will help orientate by giving them a visible point of reference. With a mix of luminaire mounting types being the norm, often in a small footprint, positioning is all important. Luminaires should be placed to help such orientation by providing a luminous pathway. Consider 'sequence' and how you are going to plan grading the illuminance of following spaces, i.e. circulation routes and work places. Accent lighting to reception furniture and background should be balanced with good facial modelling and cylindrical illuminance bearing in mind that reception staff are often desk based and use computer screens, but the lighting emphasis here should never outweigh user comfort. Use of long life light sources will minimise the impact of maintenance in such busy spaces.

Energy efficiency

Reception area

Size: 8 x 6 x 3m **Operating hours:** 3389hrs **Illuminance:** 300lux

Fitting used: Pendants over reception desk, wall wash to back wall, spotlights to pictures



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

3 Corridor/staircases

Energy saving ideas

Creating the right environment

LEDs have significant advantages for both the general and emergency lighting (see Circulation Areas) of corridors and staircases.

Because solid state lighting reacts in a linear manner and instantaneously to changes in power input, designers can deliver light exactly when and where it is needed, it is ideally suited to dimmable applications. Such flexibility allows light levels to be optimised, thus simultaneously improving quality and reducing energy usage.

Our LED range offers many dimming options. These include DALI, SwitchDim and Corridor-function whereby the lighting, instead of being switched-off abruptly if no movement is detected, is dimmed to 10 per cent and then switched off after a defined delay. As soon as someone enters the space the light is returned to its full level.

Furthermore, LEDs provide a long life, about 50,000 hours, so the combination of energy efficiency, reduced lamp replacement and maintenance costs cuts through life cost of ownership.



Taking control

Presence - Whilst the building is occupied it is often desirable to provide a comfort factor to occupants and maintain a level of illumination in these areas. Corridor function can be achieved with the use of presence detectors and HFI ballasts with CF plugs.

Automatic testing of emergency lighting along escape routes should ensure that the full rated capacity of system is available at all material times by programming testing at times of least risk.

Product range

For more information on your desired product please select from below:



Leopard LED



Novaline LED



Danube LED



Loire LED



Thames LED



Voyager E Bulkhead LED



Voyager E Exit Sign LED



Cruz 160 LED
www.thornlighting.com/CR16



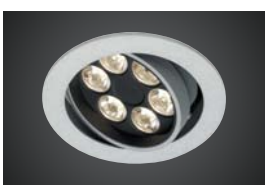
Chalice 190 LED
www.thornlighting.com/CHLD



BaseLED
www.thornlighting.com/BASE



Base LED Junior
www.thornlighting.com/BASJ



D-CO LED Downlights
www.thornlighting.com/DCOD



D-CO LED Wall Recessed
www.thornlighting.com/DCOW



Lightstream 2
www.thornlighting.com/LTSM



Good practice

The lighting in corridors and stairways is there to help the safe navigation of people throughout the building and also to light elements of interest along the way.

Luminaires should be placed to help orientation by providing a luminous pathway, usually in regular runs. Pay special attention to the end wall of the corridor, doorways, crossings, notice-boards, pictures and seating areas. Bright ceilings and walls can make corridors appear more open and appealing.

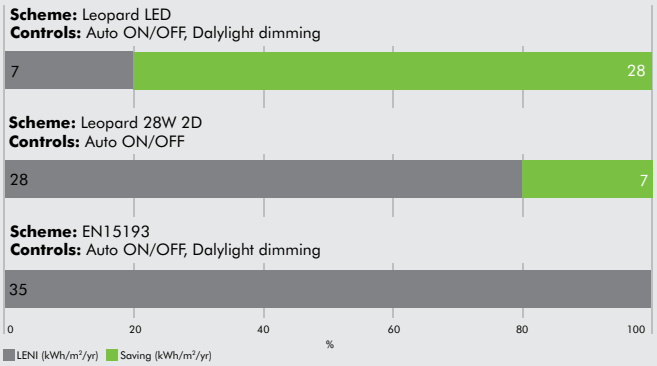
Safety is a key objective as these routes are used for emergency situations. This requires careful planning of emergency lighting to direct occupants towards a clearly designated exit. Stairs should be well lit and glare free – take care to prevent any display lighting causing glare to users.

Energy efficiency

Corridor

Size: 5.2 x 1.7 x 3m **Operating hours:** 3389hrs **Illuminance:** 150lux

Fitting used: Wall mounted bulkhead fittings



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

4 Circulation areas

Energy saving ideas

Creating the right environment

It's not just corridors and stairs that need to be clearly illuminated. Circulation areas of all kinds - internal 'streets', lift lobbies, cloakrooms or visitor waiting areas are all dependent to a large extent on lighting for their success. They certainly all need to provide sufficient illumination for people to see, to meet informally, to communicate and to carry out short tasks. In terms of safety users should always be able to find emergency exits.

Our Voyager LED series range enables designers to specify emergency lighting that is more aesthetically pleasing, consumes less power and requires smaller power supplies. All use tiny, high performance LEDs with dedicated optics to harness virtually all of the emitted light. Luminaires can thus achieve the required illumination with wider spacing than conventional fluorescent-based systems with consequent savings in material, installation and running costs.



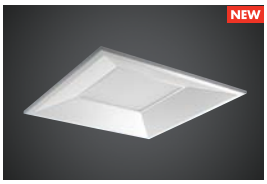
Taking control

Scene setting - Use controls to create a comfortable and appropriate environment with scene setting this will add flexibility of use to the areas.

Absence/Presence - In some areas it may also be appropriate to use some form of absence / presence detection which will raise the level of lighting from a dimmed setting to allow full use of the area.

Product range

For more information on your desired product please select from below:



Quattro LED



Elevation LED



Specline LED



Novaline LED



Danube LED



Loire LED



Thames LED



Club LED



Cruz 160 LED
www.thornlighting.com/CR16



Chalice 190 LED
www.thornlighting.com/CHLD



Base LED
www.thornlighting.com/BASE



Base LED Junior
www.thornlighting.com/BASJ



D-CO LED Downlight
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Voyager LED Series
www.thornlighting.com/VYLD



Good practice

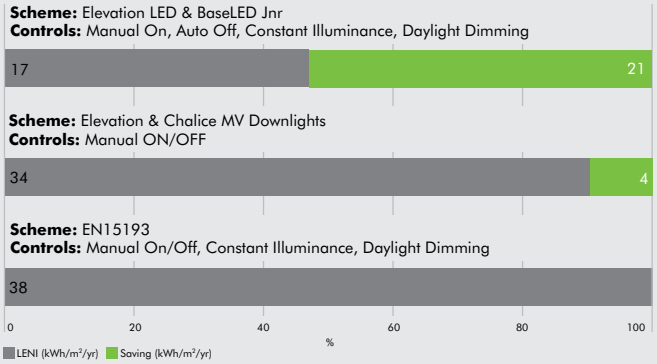
The aim is to enable visitors and staff to move from one place to another safely and make the spaces interesting and stimulating. Some circulation areas experience little traffic for long periods of the day, but others form the social hub of a building. Using presence detection to control the lighting can greatly reduce the use of electricity. Likewise as high levels of natural daylight are typically found in these spaces, automatic dimming of the luminaires also improves energy efficiency. However, care is needed in the selection of lighting controls. Generally the lighting at all critical points should be on at all times. Bright ceilings, walls and floors make the space seem open and appealing, providing a balanced ambience. Consider luminaires with some upward light distribution. Wall mounted luminaires provide good modelling of people's faces, while wall washing fixtures can create interest.

Energy efficiency

Circulation & Breakout Spaces

Size: 15.5 x 14.5 x 3m **Operating hours:** 3389hrs **Illuminance:** 300lux

Fitting used: Modular fittings to central zone with wall accent downlights



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

5 First aid room

Energy saving ideas

Creating the right environment

Good visibility is vital to critical areas such as first aid rooms. The value of good illumination wherever people are injured or suffer a sudden illness is obvious; it aids diagnosis and treatment, perhaps even saving lives. Our range of LED lighting includes products particularly suited to this application.

A combination of diffused light sources such as Elevation LED should give shadow free light to the patient and injury, whilst good colour rendering from downlights such as Base LED will aid diagnosis.



Taking control

Task lighting - Task lighting is very relevant to this location, it should provide the correct intensity and quality of light to allow for examination and treatment whilst more general illumination provided with absence detection is provided for the general area.

Areas of the room may also be considered a High risk task area, ensure that the emergency lighting meets the requirements of High Risk Task Area emergency Lighting.

Product range

For more information on your desired product please select from below:



Elevation LED



Base LED
www.thornlighting.com/BASE



Base LED Junior
www.thornlighting.com/BASJ



Voyager LED Series
www.thornlighting.com/VYLD



Good practice

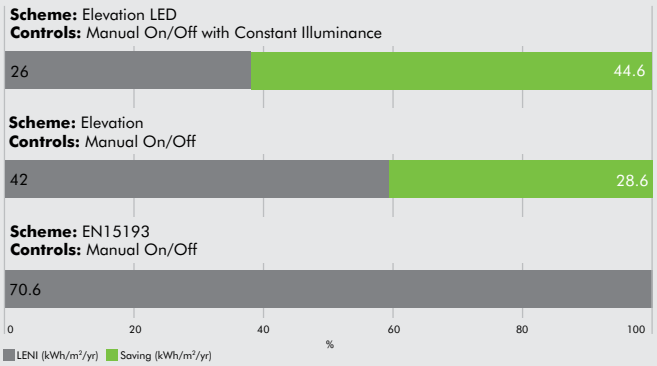
The general lighting must be suitable for the care of the injured by the designated first-aider(s). Lighting here needs to provide for examinations, preparation, treatment and movement. This will include good vertical illuminance from the ambient lighting. Good modelling helps reveal features and texture whilst preventing shadowing issues, and also makes medical staff look more caring. Pay special attention to cupboards, washbasins, the workbench or dressing trolley, seating, moveable screens etc. Colour rendering and temperature should be chosen for clinical diagnosis rather than energy efficiency. Many building codes require the first aid room to include an examination lamp for localised illumination. For the purposes of emergency lighting treat the room as a high risk area. Luminaires should be designed to be easily cleaned.

Energy efficiency

First Aid room

Size: 5.7 x 7.7 x 3m **Operating hours:** 3389hrs **Illuminance:** 500lux

Fitting used: Modular fittings with closed optics



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

6 Toilets

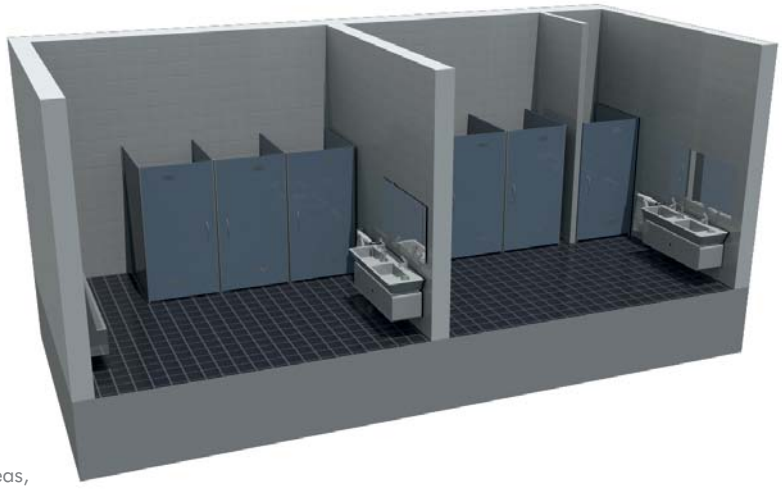
Energy saving ideas

Creating the right environment

Good lighting is worth striving for in all places and the latest advances in LED technology offer new opportunities for colour rendition and efficiency.

For toilets, often frequented, but for short periods, the use of bulkheads such as the 'intelligent' Leopard LED with its inbuilt presence sensor reaps the rewards of significantly longer light source life – LEDs simply do not suffer reduction in life from frequent switching like other light sources.

Users seeking a more restful and elegant look, more like a hotel, can opt for sealed downlights and/or stylish wall and ceiling lights. With the latest LED light engines colour rendering (Ra) figures above 90 are easily achieved at negligible sacrifice to efficacy to create a warm and inviting feel.



Taking control

Presence - Presence detection is a common choice for these areas, depending upon the design of the area it may be preferable to chose luminaires with integral sensors. It may also be appropriate that if general area sensors are used the lights do not dim to off but move to an intermediate light level before doing so.

Product range

For more information on your desired product please select from below:



Leopard LED



Danube LED



Loire LED



Thames LED



Cruz 160 LED
www.thornlighting.com/CR16



Chalice 190 LED
www.thornlighting.com/CHLD



Base LED
www.thornlighting.com/BASE



Base LED junior
www.thornlighting.com/BASJ



D-CO LED Downlights
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Voyager LED Series
www.thornlighting.com/VYLD



Good practice

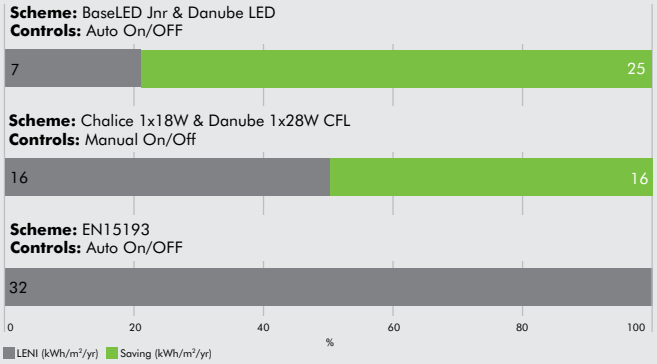
Lighting should be sympathetic avoiding harsh directional light or shadowing and include correct positioned for lockers, mirrors, sinks and make up areas with the task, facial modelling and veiling reflections in mind. The space should be well lit with no shadows in order to reinforce the feeling of cleanliness. In wet or moist environment the lighting should be of a suitable ingress protection, normally IP44 or better.

Energy efficiency

Toilets

Size: 5.2 x 6 x 3m **Operating hours:** 3389hrs **Illuminance:** 200lux

Fitting used: Downlights over cubicle, wall and ceiling diffued fittings over mirrors



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

7 Restaurant/canteen

Energy saving ideas

Creating the right environment

A successful restaurant sells more than food. It sells a visitor experience. And lighting plays an essential part in creating that experience.

In addition to choosing from an extensive range of luminaire styles and associated lighting controls, you can rely on the LEDs superior optical control to create the desired atmosphere and level(s) of illumination. Use Elevation LED for high levels of good quality, uniform, light in the staff canteen so as to encourage throughput whilst maintaining a feeling of space; LED downlights for a slower, more relaxed atmosphere; and small spotlights (Tidon LED and Prospector LED) to accent works of art or evoke privacy.



Taking control

Scene setting - Controls are essential to maximise the flexibility whilst preserving economy in these areas.

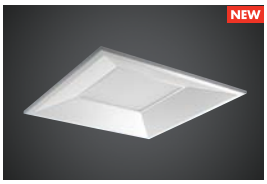
Ensure that the luminaires are appropriately grouped to maximise benefit of controls which are linked to scene controllers to allow for multi-functionality of the area.

If partitions are used in the area ensure that the lighting controls take account of this by linking operation of the partitions with lighting controls.

Daylight - Where there is a significant contribution of natural light consider daylight linking.

Product range

For more information on your desired product please select from below:



Quattro LED



Elevation LED



Cruz 160 LED
www.thornlighting.com/CR16



Chalice 190 LED
www.thornlighting.com/CHLD



Base LED
www.thornlighting.com/BASE



Base LED Junior
www.thornlighting.com/BASJ



D-CO LED Downlight
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Tidon LED
www.thornlighting.com/TIDN



Glacier II LED
www.thornlighting.com/GLCR



Prospector LED
www.thornlighting.com/PROL



Good practice

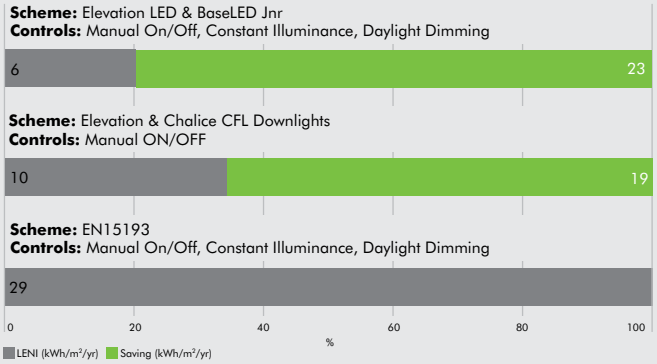
Energy efficiency is always important, but in a restaurant it will need balancing against the requirements of appearance and ambiance. Eating in the restaurant or cafeteria should be an enjoyable experience and the lighting should complement this, providing an atmosphere in which the diner can appreciate the food and the atmosphere. Uniform lighting using recessed lighting is common in dining areas with additional lighting on walls or from pendants to add visual variety. Luminaires over the tables promotes intimacy as does selecting narrower light distributions. Localised lighting and good colour rendering over the serving counter is useful in making this area attractive and easy to locate. Smooth dimming allows for different light levels and caters for special functions.

Energy efficiency

Restaurant excluding servery

Size: 15.5 x 14.5 x 3m **Operating hours:** 1040hrs **Illuminance:** 200lux

Fitting used: Modular fittings to central zone with wall accent downlights



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

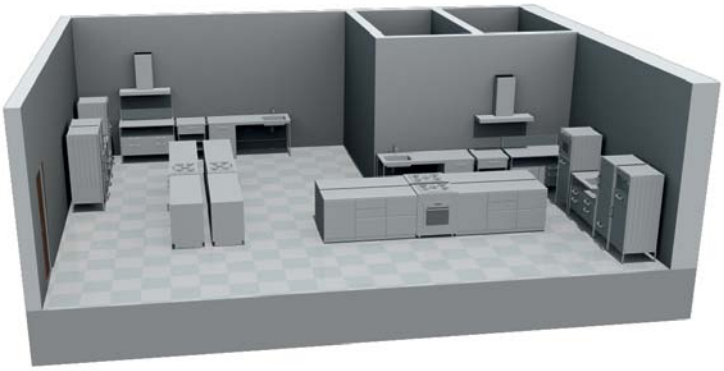
8 Kitchen

Energy saving ideas

Creating the right environment

When it comes to kitchens and work areas, lighting's a key ingredient. Sadly, it's these very areas that are often overlooked. Just because they're rarely visited by workers and guests doesn't mean you can afford to ignore them. Even in kitchens, LED lighting can work its magic. And, for a fraction of the energy cost of conventional halogen or fluorescent lighting.

CorrosionForce II LED allows good levels of hygiene with excellent performance and high efficiency in a luminaire that is easy to clean.



Taking control

Task/Scenes - The multiple activities taking place in a commercial kitchen demand task lighting during operational periods and more general lighting for times of cleaning and maintenance.

Areas of a kitchen may be considered a High risk task area, ensure that the emergency lighting meets the requirements of High Risk Task Area emergency Lighting.

Product range

For more information on your desired product please select from below:



ImpactForce II LED



CorrosionForce II LED



Voyager E Bulkhead LED



Voyager E Exit Sign LED



Cruz 160 LED
www.thornlighting.com/CR16



Base LED Junior
www.thornlighting.com/BASE



Lightstream 2
www.thornlighting.com/LTSM



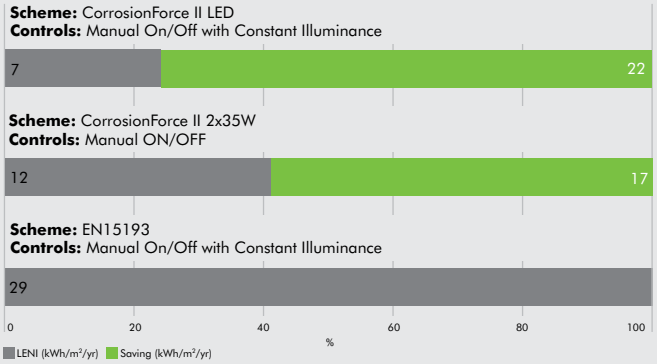
Good practice

In the kitchen good lighting promotes safety, hygiene, productivity, job satisfaction and hopefully the quality of the food! In preparation areas luminaires that are impervious to steam or vapour should be used. The luminaires should provide even illumination with good colour rendering and a warm colour temperature. Additionally, all the luminaires, together with other surfaces, will need to be regularly cleaned in accordance with food hygiene regulations. Open luminaires are not recommended. With kitchens not being in constant use occupancy controls are suggested to save energy but with a suitably long off time to preserve safety. For the purposes of emergency lighting treat the room as a high risk area.

Energy efficiency

Kitchen and food preparation

Size: 12 x 15 x 3m (L shaped to 157m²)
Operating hours: 1375hrs **Illuminance:** 300lux
Fitting used: Linear Sealed Surface mounted luminaires



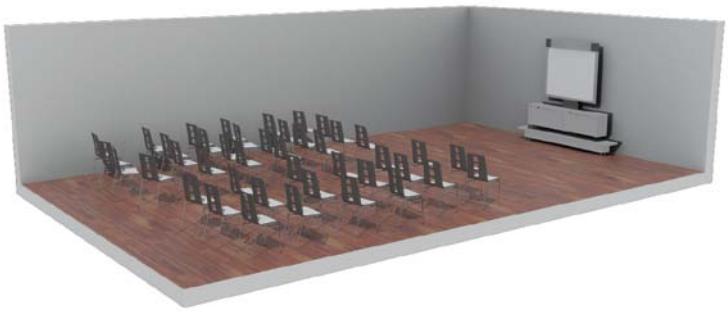
LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

9 Conference room

Energy saving ideas

Creating the right environment



If your speciality is providing conference facilities for the business community, LEDs can throw some useful light on the subject. Lighting is of paramount importance in presentations or seminars. Often there's a need for lighting changes – from full illumination (during a speaker's address) to near darkness, while a PowerPoint slideshow is running. LED lighting is designed to maximise efficiency while minimising the harsh glare that can so easily tire the eyes of the most devoted audience. Our range of LED downlights and recessed spotlights can provide accent lighting, whilst luminaires such as Elevation LED can provide uniform lighting with excellent cylindrical illuminance vital for communication within bigger conference rooms.

Taking control

Scene setting - A good lighting Control panel will be able to provide up to 6 programmable scenes for use in such areas, it will also link with auxiliary devices like AV screens, blinds and projectors.

Timed sequences - It may be a requirement that the room is used occasionally for presentations requiring high speed colour changing, in which case ensure the controller has a DMX capability.

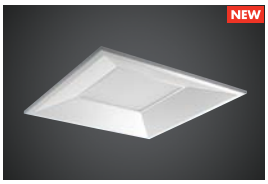
If the room is to be used by people not familiar with the surrounding then the emergency lighting exit routes will need to be indicated at all material times, switch the maintained circuits with good emergency lighting controls.

Product range

For more information on your desired product please select from below:



Menlo³ Circular LED



Quattro LED



Elevation LED



Base LED
www.thornlighting.com/BASE



Base LED Junior
www.thornlighting.com/BASJ



D-CO LED Downlights
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Tidon LED
www.thornlighting.com/TIDN



Glacier II LED
www.thornlighting.com/GLCR



Voyager Sigma
www.thornlighting.com/VSIG



Good practice

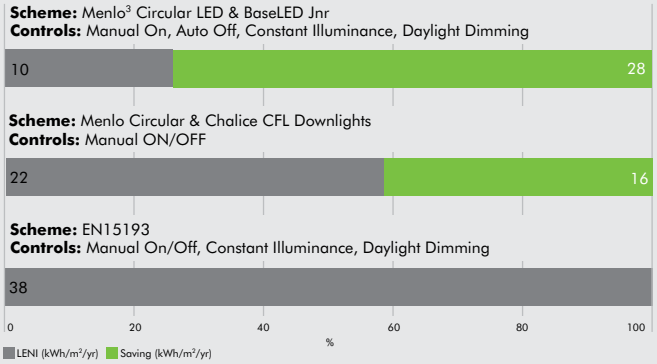
The main objectives are to ensure that occupants have suitable light to perform their tasks (such as reading and writing), that any presentations used are clearly visible, and that modelling is suitable to allow good communication between people. A good vertical illuminance component should exist to aid the visibility of wall-displays and improve modelling. Specialised lighting for message boards may be required. Simple but flexible lighting controls such as Sensa should be employed to allow the use of projectors and AV equipment and to set a luminous environment suitable for the meeting purpose.

Energy efficiency

Conference Room

Size: 8.3 x 11.1 x 3m **Operating hours:** 2340hrs **Illuminance:** 300lux

Fitting used: Modular fittings to central zone with wall accent downlights



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

10 Meeting room – Small

Energy saving ideas

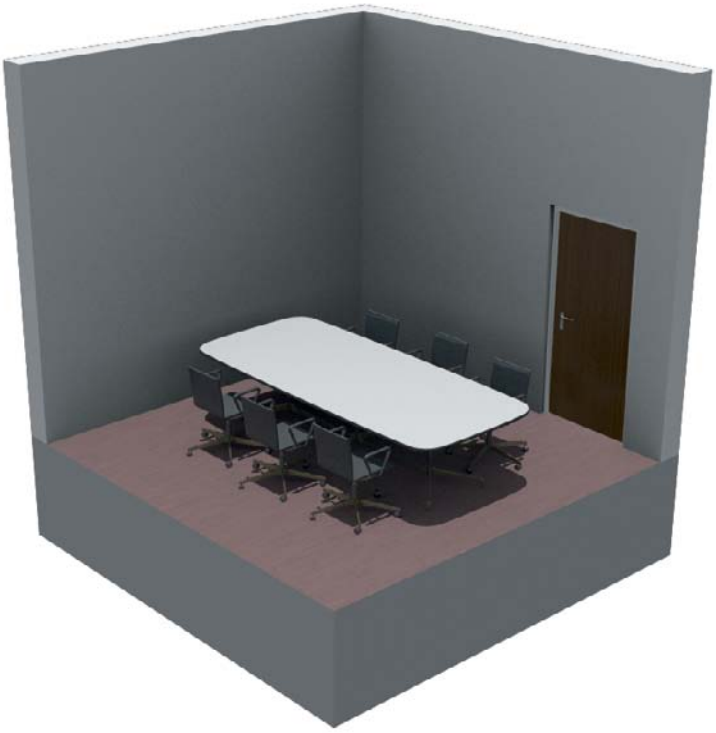
Creating the right environment

In the commercial context, space is always at a premium. That's why architects are invariably concerned with making the most of the area at their disposal. LED lighting is well known for its precise light placement, which moulds the way we perceive our surroundings.

The Menlo³ Circular LED lighting system is a fresh contemporary solution to traditional and limited modular fluorescent designs. The circular optic improves visual appearance as well as comfort of the lit space. It also saves energy - by about 20% compared to a 4x14W T16 solution and reduces maintenance costs, being designed to last for 16 years in a typical workplace.

Taking control

Absence/Presence, Daylight - Absence detection and daylight linking can be usefully be employed in smaller meeting room achieving high energy savings very simply. The control may be luminaire based and sometimes it may be appropriate to link presence to a corridor function.

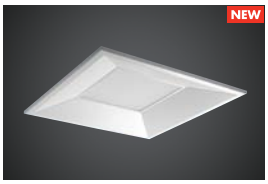


Product range

For more information on your desired product please select from below:



Menlo³ Circular LED



Quattro LED



Elevation LED



Specline LED

COMING SOON

Equaline LED
Planor LED + Wall



Base LED
www.thornlighting.com/BASE



Base LED Junior
www.thornlighting.com/BASJ



D-CO LED Downlights
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Tidon LED
www.thornlighting.com/TIDN



Glacier II LED
www.thornlighting.com/GLCR



Prospector LED
www.thornlighting.com/PROL



Voyager LED Series
www.thornlighting.com/VYLD



Voyager Sigma
www.thornlighting.com/VSIG



Good practice

A balanced ambience creates a pleasant work environment. Ensuring light falls onto the walls and ceiling helps prevent dark surfaces creating an oppressive atmosphere. Careful use of wall-washing luminaires and indirect lighting can help produce a positive environment. Lamps with a colour rendering index of 80 or more should be used to enhance visual performance and visual satisfaction.

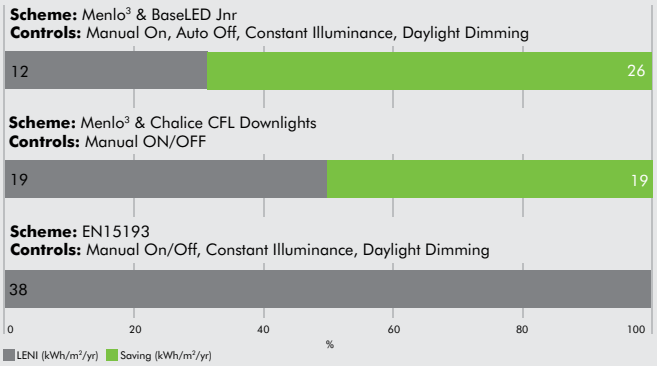
For areas that may be reconfigured lighting controls may be used to set the light levels for individual luminaires. For meeting rooms containing display screen or boards luminaires with suitable optical control to reduce any glare should be used.

Energy efficiency

Meeting Room

Size: 3.8 x 5.6 x 3m **Operating hours:** 2340hrs **Illuminance:** 300lux

Fitting used: Modular fittings to central zone with wall accent downlights



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

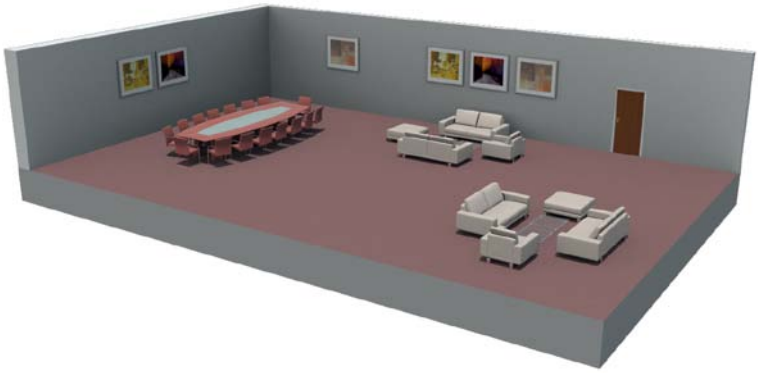
11 Meeting room – Large

Energy saving ideas

Creating the right environment

In the commercial context, space is always at a premium. That's why architects are invariably concerned with making the most of the area at their disposal. LED lighting is well known for its precise light placement, which moulds the way we perceive our surroundings.

The Menlo³ Circular LED lighting system is a fresh contemporary solution to traditional and limited modular fluorescent designs. The circular optic improves visual appearance as well as comfort of the lit space. It also saves energy - by about 20% compared to a 4x14W T16 solution and reduces maintenance costs, being designed to last for 16 years in a typical workplace.



Taking control

Absence/Presence, Daylight - Absence detection and daylight linking can be usefully be employed in meeting rooms achieving high energy savings very simply. The control may be luminaire based and sometimes it may be appropriate to link presence to a corridor function.

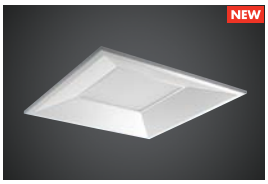
Scene setting - Additionally, if the room is used for a variety of activities it may be appropriate to consider some task area lighting / scene setting perhaps linked to AV devices and blind control.

Product range

For more information on your desired product please select from below:


NEW

Menlo³ Circular LED


NEW

Quattro LED


NEW

Elevation LED


NEW

Specline LED

COMING SOON

Equaline LED
Planor LED + Wall



Cruz 160 LED
www.thornlighting.com/CR16



Chalice 190 LED
www.thornlighting.com/CHLD



Base LED
www.thornlighting.com/BASE



Base LED Junior
www.thornlighting.com/BASJ



D-CO LED Downlights
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Prospector LED
www.thornlighting.com/PROL



Glacier II LED
www.thornlighting.com/GLCR



Voyager LED Series
www.thornlighting.com/VYLD



Voyager Sigma
www.thornlighting.com/VSIG



Good practice

A balanced ambience creates a pleasant work environment. Ensuring light falls onto the walls and ceiling helps prevent dark surfaces creating an oppressive atmosphere. Careful use of wall-washing luminaires and indirect lighting can help produce a positive environment. Lamps with a colour rendering index of 80 or more should be used to enhance visual performance and visual satisfaction.

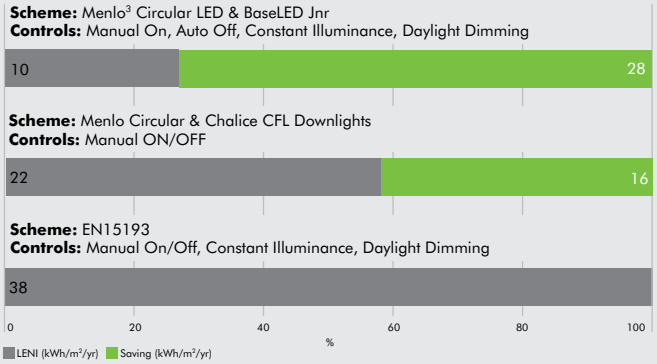
For areas that may be reconfigured lighting controls may be used to set the light levels for individual luminaires. For meeting rooms containing display screen or boards luminaires with suitable optical control to reduce any glare should be used.

Energy efficiency

Meeting Room Large

Size: 15.5 x 14.5 x 3m **Operating hours:** 2340hrs **Illuminance:** 300lux

Fitting used: Modular fittings to central zone with wall accent downlights



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

Office – Small

Energy saving ideas

Creating the right environment

Increasingly, office lighting must facilitate a wide diversity of tasks, from discussing a point of detail with a neighbouring colleague, writing a note or viewing emails. In each case, the expert application of LED should go a long way towards creating a harmonious, glare-free environment for everyone.

Greater efficiency can be achieved with Elevation LED and Menlo^3 Circular LED than ever before and these recessed luminaires now also offer a sensible alternative for small, medium and large open spaces, especially when using lighting controls. They offer a real alternative over traditional fluorescent equivalents with no compromise: greater lumen output with maximum efficacy (> 72 Llm/W), longer life and low luminance for a comfortable working environment. Elevation LED's upward lighting component provides a more stimulating lit environment, minimising the 'cave-effect' often associated with recessed modular luminaires.



Taking control

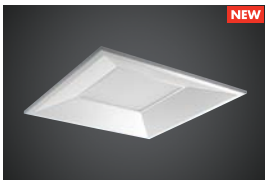
Absence/Presence, Daylight, Task lighting - Consider the use of luminaire based absence detection perhaps with daylight linking and provide some task area lighting with the ability to over-ride light levels with remote IR control.

Product range

For more information on your desired product please select from below:



Menlo^3 Circular LED



Quattro LED



Elevation LED



Specline LED

COMING SOON

Equaline LED
Planor LED + Wall



Base LED Junior
www.thornlighting.com/BASJ



D-CO LED Downlights
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Tidon LED
www.thornlighting.com/TIDN



Glacier II LED
www.thornlighting.com/GLCR



Prospector LED
www.thornlighting.com/PROL



Voyager LED Series
www.thornlighting.com/VYLD



Good practice

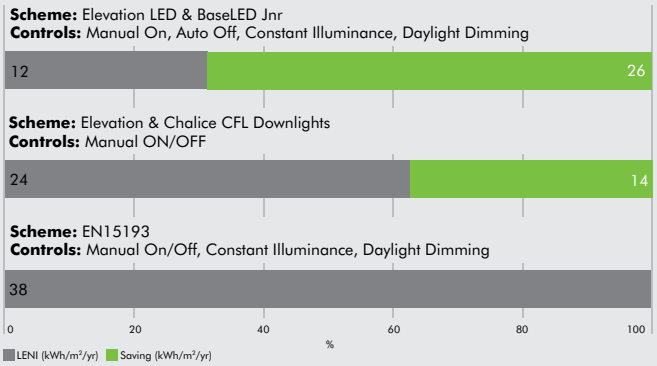
The main objective is to ensure that people have suitable light to perform their tasks quickly and accurately without any stress or strain caused by poor lighting levels or poorly positioned lighting causing visual disability or discomfort. Work involving small or complex detail will require higher lighting levels than more general office tasks. If a small number of people in an open office perform these tasks local lighting may be required for them. Care should be taken when positioning luminaires to avoid the worker creating shadows on the task. Glare on computer screens should be avoided by using low luminance luminaires of course remembering that most communication in offices is face to face and good lighting that avoids sharp cut-off enhances this through good cylindrical illuminance and modelling.

Energy efficiency

Small one person office with meeting table

Size: 5.7 x 7.6 x 3m **Operating hours:** 2340hrs **Illuminance:** 300lux

Fitting used: Modular fittings to central zone with wall accent downlights



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

13 Office – Medium

Energy saving ideas

Creating the right environment

Increasingly, office lighting must facilitate a wide diversity of tasks, from discussing a point of detail with a neighbouring colleague, writing a note or viewing emails. In each case, the expert application of LED should go a long way towards creating a harmonious, glare-free environment for everyone.

Greater efficiency can be achieved with Elevation LED and Menlo^3 Circular LED than ever before and these recessed luminaires now also offer a sensible alternative for small, medium and large open spaces, especially when using lighting controls. They offer a real alternative over traditional fluorescent equivalents with no compromise: greater lumen output with maximum efficacy (> 72 Llm/W), longer life and low luminance for a comfortable working environment. Elevation LED's upward lighting component provides a more stimulating lit environment, minimising the 'cave-effect' often associated with recessed modular luminaires.



Taking control

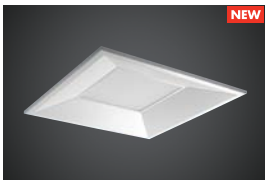
Absence/Presence detection, Task lighting - Whilst the office may contain people carrying out similar tasks, personal preferences, eye sight and age will all affect the optimum light level so consider task lighting where these factors may be important but more likely will be the need to provide absence detection and localised controls to allow for over-ride when required (some Countries, UK included, specify a maximum travel distance to reach manual controls from a work station).

Product range

For more information on your desired product please select from below:



Menlo^3 Circular LED



Quattro LED



Elevation LED



Specline LED

COMING SOON

Equaline LED
Planor LED + Wall



Cruz 160 LED
www.thornlighting.com/CR16



Chalice 190 LED
www.thornlighting.com/CHLD



Base LED
www.thornlighting.com/BASE



Base LED junior
www.thornlighting.com/BASJ



D-CO LED Downlights
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Prospector LED
www.thornlighting.com/PROL



Glacier II LED
www.thornlighting.com/GLCR



Voyager LED Series
www.thornlighting.com/VYLD



Voyager Sigma
www.thornlighting.com/VSIG



Good practice

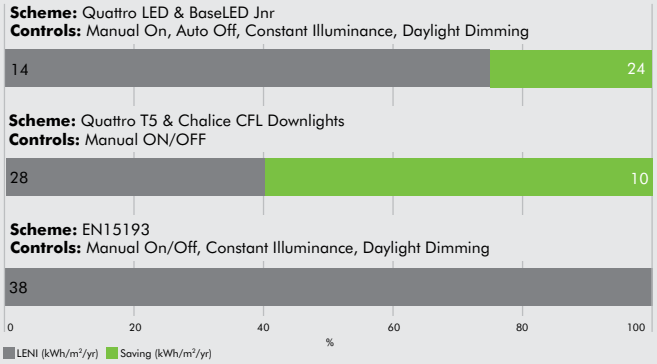
The main objective is to ensure that people have suitable light to perform their tasks quickly and accurately without any stress or strain caused by poor lighting levels or poorly positioned lighting causing visual disability or discomfort. Work involving small or complex detail will require higher lighting levels than more general office tasks. If a small number of people in an open office perform these tasks local lighting may be required for them. Care should be taken when positioning luminaires to avoid the worker creating shadows on the task. Glare on computer screens should be avoided by using low luminance luminaires of course remembering that most communication in offices is face to face and good lighting that avoids sharp cut-off enhances this through good cylindrical illuminance and modelling.

Energy efficiency

Medium 2-4 person office with meeting table

Size: 8.4 x 10.7 x 3m **Operating hours:** 3389hrs **Illuminance:** 300lux

Fitting used: Modular fittings to central zone with wall accent downlights



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

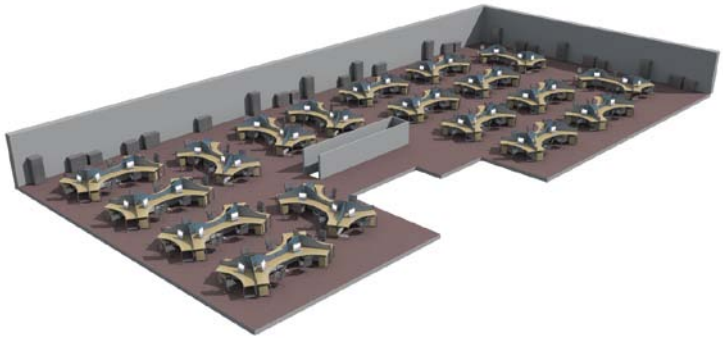
Office – Open

Energy saving ideas

Creating the right environment

Increasingly, office lighting must facilitate a wide diversity of tasks, from discussing a point of detail with a neighbouring colleague, writing a note or viewing emails. In each case, the expert application of LED should go a long way towards creating a harmonious, glare-free environment for everyone.

Greater efficiency can be achieved with Elevation LED and Menlo³ Circular LED than ever before and these recessed luminaires now also offer a sensible alternative for small, medium and large open spaces, especially when using lighting controls. They offer a real alternative over traditional fluorescent equivalents with no compromise: greater lumen output with maximum efficacy (> 72 Llm/W), longer life and low luminance for a comfortable working environment. Elevation LED's upward lighting component provides a more stimulating lit environment, minimising the 'cave-effect' often associated with recessed modular luminaires.



Taking control

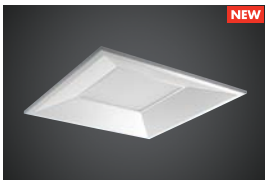
Maintained Illuminance, Absence/Presence detection, Daylight, Task lighting, corridor function - Consider the option of providing maintained illuminance and zoned absence detection in conjunction with Daylight linking if natural light is available. Ensure that the areas or groups of lighting control overlap to some degree to avoid pools of dark and light which can be uncomfortable for users. Consider the need for some task area lighting with the ability to over-ride light levels with remote IR control. In larger offices it is also common to see the use of corridor linking to provide a comfort factor for users.

Product range

For more information on your desired product please select from below:



Menlo³ Circular LED



Quattro LED



Elevation LED



Specline LED



Voyager E Exit Sign LED

COMING SOON

Equaline LED
Planor LED + Wall



Cruz 160 LED
www.thornlighting.com/CR16



Chalice 190 LED
www.thornlighting.com/CHLD



Base LED
www.thornlighting.com/BASE



Base LED junior
www.thornlighting.com/BASJ



D-CO LED Downlights
www.thornlighting.com/DCOD



Lightstream 2
www.thornlighting.com/LTSM



Prospector LED
www.thornlighting.com/PROL



Voyager LED Series
www.thornlighting.com/VYLD



Voyager Sigma
www.thornlighting.com/VSIG



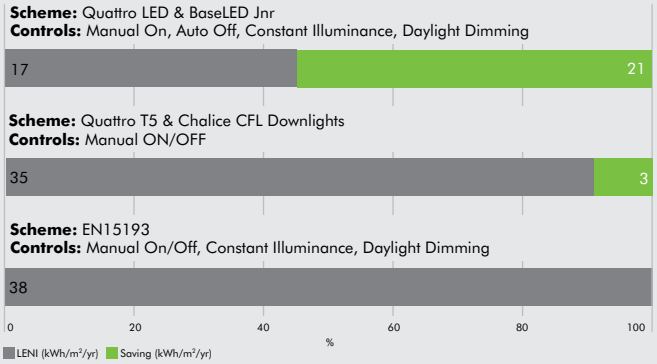
Good practice

The main objective is to ensure that people have suitable light to perform their tasks quickly and accurately without any stress or strain caused by poor lighting levels or poorly positioned lighting causing visual disability or discomfort. Work involving small or complex detail will require higher lighting levels than more general office tasks. If a small number of people in an open office perform these tasks local lighting may be required for them. Care should be taken when positioning luminaires to avoid the worker creating shadows on the task. Glare on computer screens should be avoided by using low luminance luminaires of course remembering that most communication in offices is face to face and good lighting that avoids sharp cut-off enhances this through good cylindrical illuminance and modelling.

Energy efficiency

Open Plan office for multiple occupation

Size: 64 x 31 x 3m (not rectangular, totaling only 1741 m²)
Operating hours: 3389hrs **Illuminance:** 300lux
Fitting used: Modular fittings to central zone with wall accent downlights



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

15 Classroom

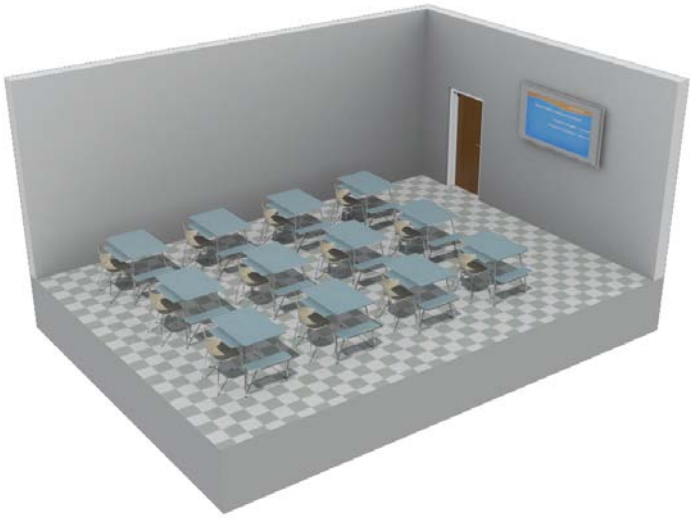
Energy saving ideas

Creating the right environment

Lighting can influence concentration, mood and interaction. Varying the proportions of direct and indirect light within the space, and the amount of light on the walls or ceiling can change the atmosphere, creating an environment that promotes learning. Fortunately, those hoping to achieve precisely the right balance have a powerful ally in LED lighting.

Direct/Indirect luminaires produce a component of uplight that lights up the space preventing walls appearing dark and uninviting. The lit effect is 'shadow free' without strong modelling, thus aiding communication and enabling learning.

When it comes to providing an even distribution of light for mathematics or language classes; for showing colour and detail accurately in the art room or instantly dimming for daylight compatibility, there is no better medium than solid state lighting – and through life it is cost effective too.

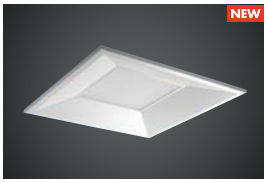


Taking control

Daylight, Scene setting - Traditional classrooms benefit from a mix of zoned lighting control in rows heading away from windows providing daylight and local scene control at the front of the classroom to provide the lecturer with the ability to select the appropriate lighting scene for general discussion, White Board use or AV presentations.

Product range

For more information on your desired product please select from below:



Quattro LED



Elevation LED

COMING SOON

Equaline LED
Planor LED



Good practice

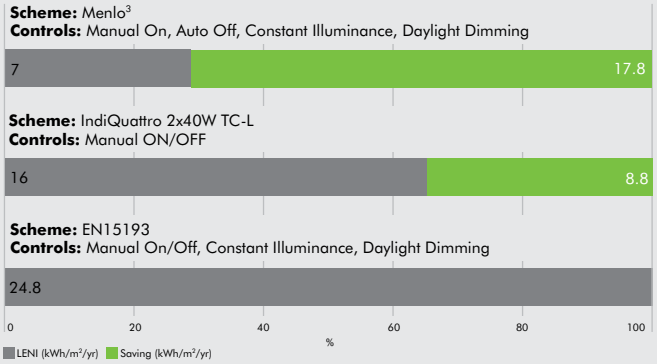
Main objectives are to ensure that occupants have suitable light to perform their tasks (such as reading and writing), that students can see any teaching aids (whiteboards or projected information), and that modelling is suitable to allow good communication between students and tutors. As teaching spaces increasingly use computer screens, luminaires with suitable optical control to remove any glare should be used. Care also needs to be taken where interactive message boards are installed to ensure good visibility. Lighting controls should be easy to access, simple to use and flexible in operation. For informal teaching in a relaxed atmosphere the lighting should be gentle and unobtrusive.

Energy efficiency

Standard classroom

Size: 7.5 x 7.9 x 3m **Operating hours:** 2000hrs **Illuminance:** 300lux

Fitting used: Modular fittings on regular array



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

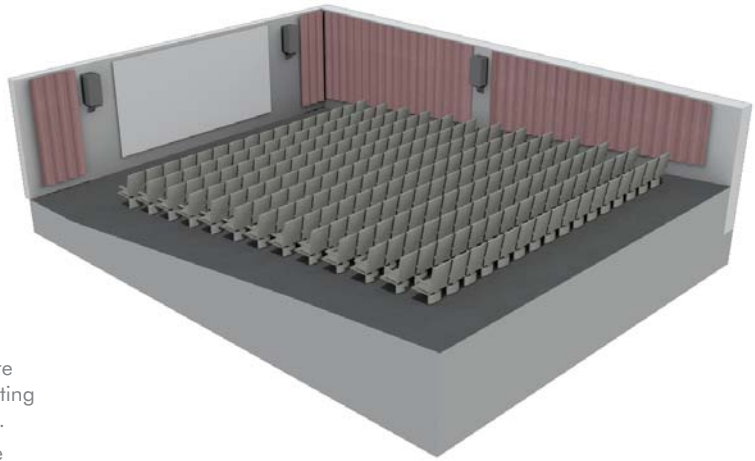
16 Lecture theatre

Energy saving ideas



Creating the right environment

Nowhere is the need for flexible, high quality illumination more apparent than in the lecture theatre. Modelling is of special importance for good communication as is the ability to create scenes suited to different styles of lecture, to lighting the speaker and to viewers recording notes. Equally, long hours of uninterrupted concentration without fatigue will depend upon the maintenance of a suitably glare-free working environment.



Taking control

Daylight, Scene setting - Lecture Theatres may benefit from a mix of zoned lighting control in rows heading away from windows providing daylight and local scene control at the front of the theatre to provide the lecturer with the ability to select the appropriate lighting scene for general discussion, White Board use or AV presentations.

Timed off - There may be further requirement to access the scene setting remotely either via additional scene plates or in a remote control room. It is also common to have the lighting linked to the BMS in order to switch HVAC equipment.

Product range

For more information on your desired product please select from below:



Menlo³ Circular LED



Elevation LED



Voyager E Exit Sign LED



Cruz 160 LED
www.thornlighting.com/CR16



Chalice 190 LED
www.thornlighting.com/CHLD



Base LED
www.thornlighting.com/BASE



Voyager Sigma
www.thornlighting.com/VSIG



Good practice

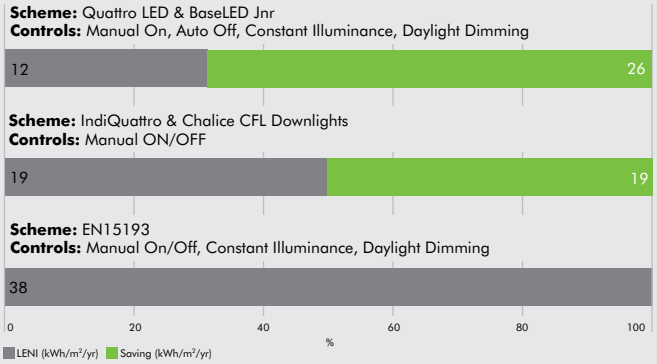
With occupants looking essentially in the same direction for long periods of time and lecture theatres typically having little daylight care must be taken to design an installation that minimises discomfort caused by lighting. The lighting needs to be flexible to react to the learning needs of the space. Dimmable luminaires should be employed, ideally controlled by the lecturer, to allow the use of projectors or other AV equipment. Where tiered, cinema style, seating is common the luminaires should be shielded from the audience and mounted in parallel with the rows of seating. The lighting needs to ensure vertical surfaces are well modelled, from people's faces to flip-charts and whiteboards. This detail should be visible across relatively long distances. Lighting of the lecturer and whiteboard(s) is best provided by a separate, localised, installation.

Energy efficiency

Lecture room for 60 people

Size: 8.4 x 10.7 x 3m **Operating hours:** 2340hrs **Illuminance:** 300lux

Fitting used: Modular fittings to central zone with wall accent downlights



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

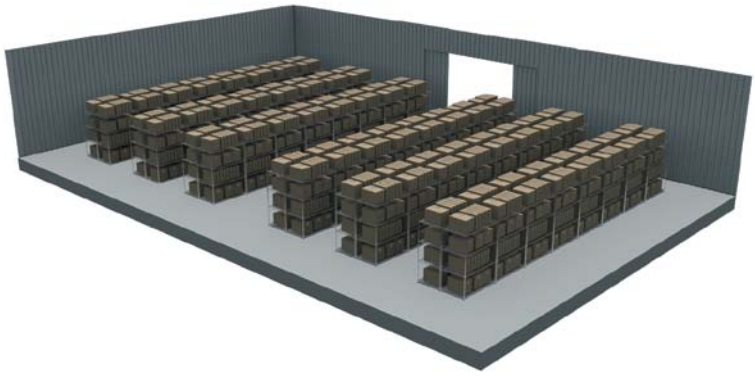
17 Warehouse/storage rooms

Energy saving ideas

Creating the right environment

Warehouse users require adequate levels of illumination on horizontal surfaces such as fork lift controls and bar code scanners. They also need good coverage on vertical surfaces, particularly when searching through products amongst the storage racks.

Given that they illuminate both the horizontal and vertical planes from the same source, Impactforce II LED luminaires are a most appropriate solution. They are equipped with replaceable LED engines to deliver high quality light with good colour rendering over long periods of time (50,000 hours @L70). Impactforce II LED has unique dual optics for a wide, uniform, light distribution and is also adjustable via DALI dimming allowing easy integration with daylight and absence dimming systems such as Sensa to reduce energy.



Taking control

Presence/Absence, Daylight - Controls for warehouses usually involve presence detection and dimmed high level lighting, however modern high output LED luminaires can be controlled more effectively and these may be switched instead of dimmed and can be luminaire based.

Hi-Bay sensors with increased performance over regular sensor due to the high mounting levels are normally employed in warehouses, these can be either PIR or Microwave depending upon the application.

Timed - If not used 24 hours per day Warehouses sometimes employ Timed lighting controls to provide illumination for security or cleaning staff.

Product range

For more information on your desired product please select from below:



ImpactForce II LED



CorrosionForce II LED



AquaForce II LED



Voyager E Bulkhead LED



Voyager E Exit Sign LED



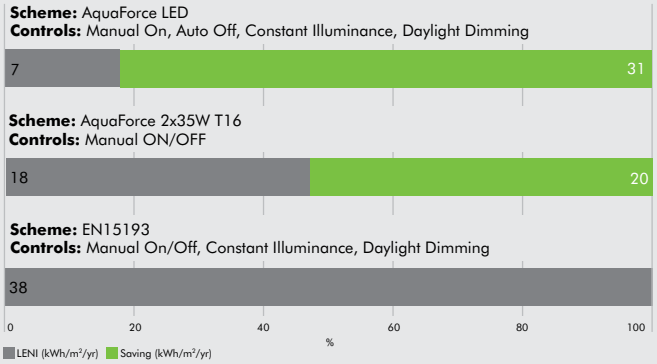
Good practice

Luminaire layouts need to be planned in accordance with the route of goods movement and the location of stocking equipment. For bulk storage at floor level it is generally important to avoid significant shadows. A suitable illuminance on vertical surfaces is required if the reading of identification marks or labels is frequently necessary. A suitable method of lighting these areas is to use a closely spaced overhead layout of luminaires with a wide distribution. Lighting should take into account the safety of occupants especially in the presence of moving vehicles.

Energy efficiency

Warehouse

Size: 107 x 62 x 6m (L shaped, totalling no more than 4728m²)
Operating hours: 2650hrs **Illuminance:** 100-300lux
Fitting used: Linear fittings mounted according to racking



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

Loading bay

Creating the right environment

Long burning hours; near 24 hour operation; low cost, impact resistant, low-maintenance running – you'd need to go a long way to find more rigorous requirements than those imposed by transport operations on the lighting supplier. Particularly significant, then, that LEDs are noted for their robustness and resistance to breakage and vibration. They also perform well at low temperatures.

The linear CorrosionForce II and ImpactForce II LED luminaires rate highly in terms of task visibility, economy and versatility. These units are equipped with replaceable LED "engines" and unique dual optics for a wide angled, uniform, light distribution. They offer high levels of performance with good colour rendering over extended time periods (50,000 hours @L70) – ideal for difficult to access locations - DALI dimming allows integration with energy reducing controls such as Sensa or existing lighting controls systems.



Taking control

Task scene setting, Presence absence - Docking bays are normally busy places and can be enhanced greatly with good lighting controls not only saving energy but also for the automatic provision of stop & go lighting and docking bay guidance either via central control or localised switch panels and sensors.

Timed - If not used 24 hours per day Loading Bays sometimes employ Timed lighting controls to provide illumination for security or cleaning staff.

Product range

For more information on your desired product please select from below:



ImpactForce II LED



CorrosionForce II LED



AquaForce II LED



Voyager E Bulkhead LED



Voyager E Exit Sign LED



Good practice

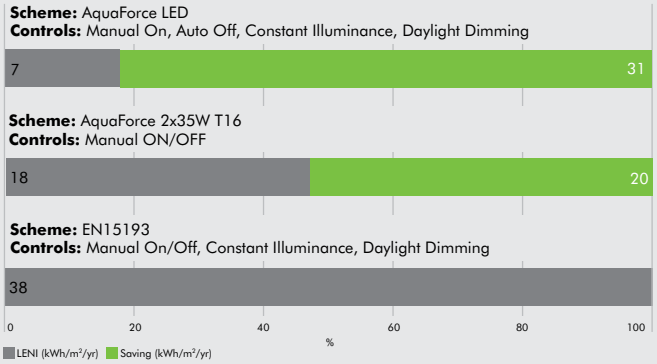
There must be sufficient light to ensure worker safety. Higher light levels are required in areas where goods are loaded/unloaded and for potential conflict areas where cargo is sorted into handling bays.

Lighting equipment should be sited to avoid collision with cargo handling equipment. Luminaires should be robust to avoid damage to the light source and be suitably protected against the elements - IP65 is recommended. They should be fit for purpose, so consider operating conditions such as excessive cold, vibration or a corrosive atmosphere. Also consider access for maintenance and thus choose technology that minimises the necessity for intervention for maintenance.

Energy efficiency

Warehouse

Size: 107 x 62 x 6m (L shaped, totalling no more than 4728m²)
Operating hours: 2650hrs **Illuminance:** 300lux
Fitting used: Linear fittings mounted to avoid door positions



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

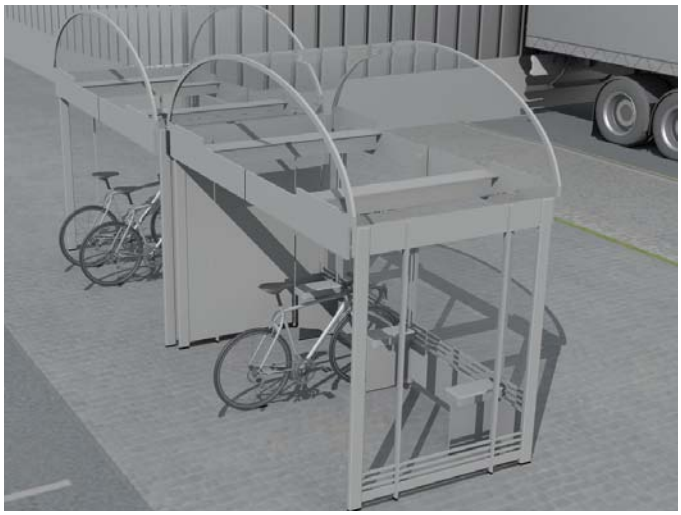
19 Cycle bays

Energy saving ideas



Creating the right environment

Whether it's due to improving staff fitness and health, ever increasing fuel prices or seeking to reduce demand for parking, many workplaces are providing bicycle parking bays or compounds on-site. In order to encourage workers onto two wheels, these covered structures should ideally be designed with a more welcoming atmosphere than the open car park. LEDs provide an ideal solution. In addition to reducing maintenance and running costs they excel where reliability, frequent switching and the provision of a warm atmosphere are key factors.



Taking control

Presence/absence, Timed - As part of an outdoor lighting system, cycle bays should have sufficient illumination to allow users safe access and provide a level of security during material hours of darkness.

Consider using presence detection linked to daylight but also consider use of timed lighting control linked to building occupation or shift hours.

Product range

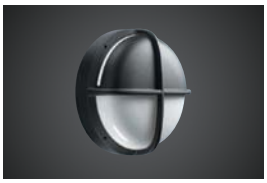
For more information on your desired product please select from below:



Leopard LED



Escort LED



Eyekon LED
www.thornlighting.com/EYKN



Good practice

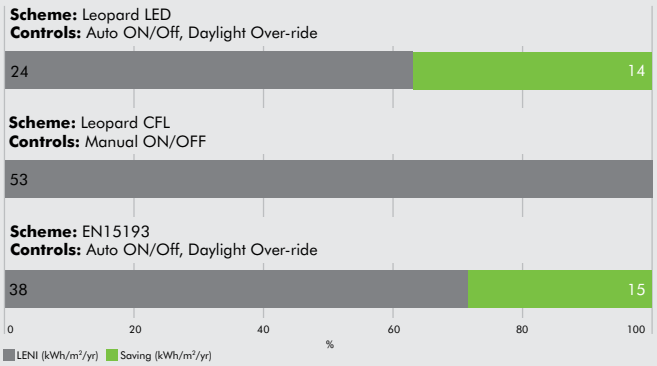
All cycle bays should be well lit, either directly or by the surrounding car pack lighting. Lighting should help cyclists see the faces of others to help give a feeling of security, especially as many workers arrive on site early or leave late at night, aid with the locking or unlocking of coded locks and aid orientation. Improving the vertical illuminance also improves the effectiveness of CCTV coverage. Additionally, the pedestrian access route to the building entrance should be well lit to ensure the cyclists' continued safety. Depending upon the complexity of the route emergency lighting may be required. All equipment should be fully sealed against the ingress of moisture and dust and be vandal resistant.

Energy efficiency

Parking Area

Size: 3 x 15 x 2m **Operating hours:** 4380hrs **Illuminance:** 50lux

Fitting used: Vandal resistant sealed bulkhead luminaires



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

Car park

Energy saving ideas

Creating the right environment

In terms of lighting design, car parks present a particularly challenging brief – finding the acceptable balance between safety issues, reduced energy consumption and obtrusive light. LEDs are today's ideal solution. They perform impeccably, with high quality white light and superior optical control, enjoy a longer than average, trouble-free life and are not restricted to basic on/off switching – the perfect prescription for illuminating those wide open spaces.

LED lanterns such as Oxane and Dyana LED offer distributions suited to mixed vehicle and pedestrian traffic whilst restricting light nuisance beyond the car park perimeter. Linked to lighting controls such as Sensa or Telea, energy savings as high as 74% are possible.



Taking control

Timed - As part of an outdoor lighting system, car parks should have sufficient illumination to allow users to drive, to identify pedestrians and to have safe access and provide a level of security during material hours of darkness.

Timed ON/OFF and dimming using a link to the building control system using SENSA offers all these possibilities and allows areas unused at specific times to be turned off when not needed.

Product range

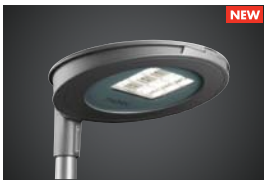
For more information on your desired product please select from below:



E/Fact LED (under trees)



Mica Slim LED



Dyana LED



Christian IV LED

COMING SOON

Avenue D^2 LED



Contrast LED
www.thornlighting.com/CONL



D-CO LED (under trees)
www.thornlighting.com/DCOR



Avenue F LED
www.thornlighting.com/AVFL



Plurio LED
www.thornlighting.com/PLRL



Nella LED
www.thornlighting.com/NLLL



Oxane
www.thornlighting.com/OXAN



Good practice

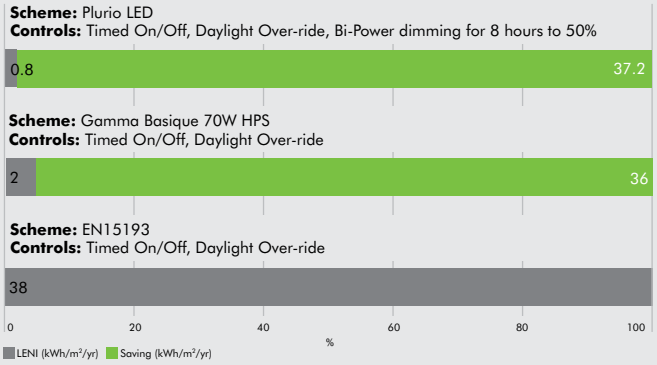
Outdoor lighting for car parks presents a fresh set of challenges with safety and security being the prime objectives. Frequently containing a mixture of pedestrians, cyclists and moving vehicles the speed and direction of movement of users within the space is a key factor. A common approach for lighting is to use 6-8m lighting columns, either on the edge of the car park or centrally mounted to provide a good level of horizontal and vertical illuminance at ground level. Care must be taken to avoid spill light onto adjacent housing or transportation routes. Supplementary lighting at entrance barriers and exits can help aid colour and perception. All lighting equipment should be IP, and IK rated for environmental conditions and vandal resistance. Units should also utilise lighting controls to conserve energy.

Energy efficiency

Parking Area

Size: 104 x 49m **Operating hours:** 4380hrs **Illuminance:** 10lux

Fitting used: Vandal resistant amenity lanterns (Plurio LED - with zero upward light)



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

Building surround

Energy saving ideas

Creating the right environment

Selective exterior lighting can not only define the physical characteristics of a building and its surrounds, but impact upon it's habitability by influencing the level of safety, ambience and efficiency of operation provided. Whatever the setting, you can rely on the latest ideas in LED lighting to achieve maximum visual impact with minimal environmental impact.

Designed for use at low mounting heights on a wall or bollard, the circular Eyekon LED features an 18W LED module to give more light than a conventional 26W CFL bulkhead. Other benefits beyond energy saving include long life, reduced maintenance, true colour quality, two colour temperature options, and control flexibility via daylight sensors.

On the other hand, the compact size and accuracy of D-CO LED floodlights and D-CO LED recessed units gives you unrivalled flexibility for great lighting effects.



Taking control

Timed - As part of an outdoor lighting design the perimeter and facade lighting should be switched off when there is no one around to see or use the building, car parks should have sufficient.

Facade illumination can be dimmed or colour controlled via systems such as SENSA.

Product range

For more information on your desired product please select from below:



Leopard LED



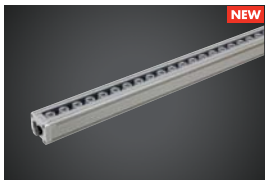
Escort LED



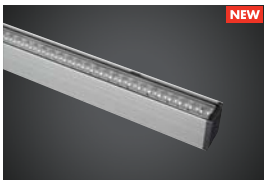
Danube LED



Loire LED



Satin



Band²



E/Fact LED



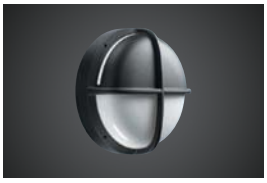
Mica Slim LED

COMING SOON

LineLED
Avenue D² LED
Tea

Product range

For more information on your desired product please select from below:



Eyekon LED
www.thornlighting.com/EYKN



Cesar LED
www.thornlighting.com/CESA



Contrast LED
www.thornlighting.com/CONL



QBA LED
www.thornlighting.com/QBLD



D-CO LED Recessed
www.thornlighting.com/DCOR



D-CO LED Flood
www.thornlighting.com/DCOF



Contrast Mini Pinspot LED
www.thornlighting.com/CONM



Milo
www.thornlighting.com/MILO



Band
www.thornlighting.com/BAND



Avenue F LED
www.thornlighting.com/AVFL



Plurio LED
www.thornlighting.com/PLRL



Nella LED
www.thornlighting.com/NLLL



Alumet Stage LED
www.thornlighting.com/ALUS



Adelie
www.thornlighting.com/ADLE



Promenade LED
www.thornlighting.com/PMLD

Good practice

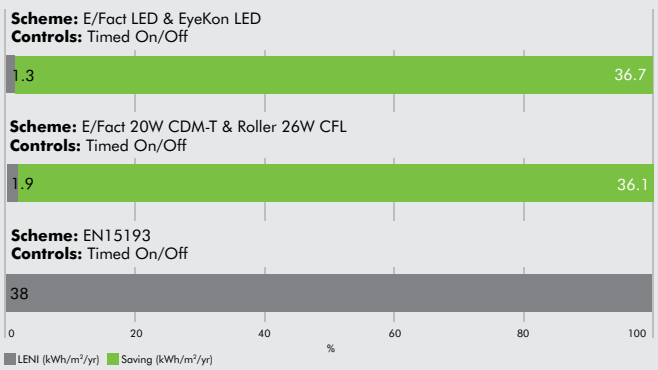
The lighting needs to provide a sufficient quality and quantity of light to ensure safe pedestrian movement and enable all relevant objects to be clearly visible. The lighting needs to light a volume of space ensuring a balanced brightness across all object surfaces, creating visual links and clear boundaries, and avoiding dark spaces that feel excessively enclosed or unsafe. Any lighting of the building itself must be co-ordinated with the surrounding general ambient lighting so they complement the overall effect. This also applies to the daytime integration of equipment. For maximum impact the lighting should work together with the architecture. Use colour and movement carefully and avoid light above the horizontal. Dimming or selective switching of some luminaires when appropriate helps reduce energy use.

Energy efficiency

Perimeter and façade lighting

Size: 107.6m **Operating hours:** 4380hrs **Illuminance:** 10lux

Fitting used: Vandal resistant and walk over safe luminaires



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

Pathways

Energy saving ideas

Creating the right environment

By offering design advantages as well as flexibility and efficiency, LEDs present the perfect solution for footpaths and walkways. Whether you need to guide new visitors or highlight points of interest, LEDs create endless possibilities. Crucially their small size and low surface temperatures give you unrivalled flexibility for great lighting effects that are safe.

Buried walkover lights such as E/Fact LED are cool to touch, the lighting surface is under 40°C, and holographic film technology efficiently shapes the light beam, thus producing a variety of effects. They can create exciting lighting effects, guidance and interest, particularly when using colour and movement provided by the DMX colour changing RGB versions, driven by control systems such as Sensa.



Taking control

Timed - As part of an outdoor lighting system pathways should have sufficient illumination to allow users move safely, but only during hours when the building is open. Later in the evening BiPower dimming can be used to dim lighting for security only or to switch it off using systems such as SENSA.

Product range

For more information on your desired product please select from below:



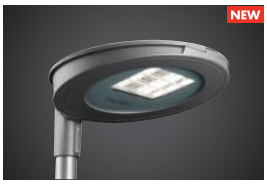
Escort LED



E/Fact LED



Mica Slim LED



Dyana LED



Christian IV LED

COMING SOON

Via LED
Jalon LED
Avenue D² LED
Tea



D-CO LED Recessed
www.thornlighting.com/DCOR



Avenue F LED
www.thornlighting.com/AVFL



Plurio LED
www.thornlighting.com/PLRL



Nella LED
www.thornlighting.com/NLLL



Alumet Stage LED
www.thornlighting.com/ALUS



Adelie
www.thornlighting.com/ADLE



Promenade LED
www.thornlighting.com/PMLD



Good practice

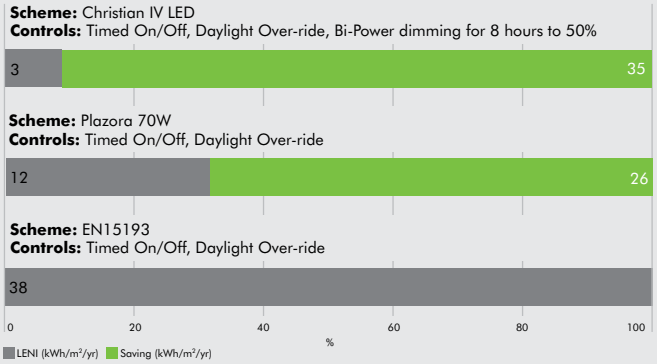
The object of the lighting should promote safe and easy movement of pedestrian's with a feeling of general security and well-being. Lighting levels are determined by the crime risk and the presence of potential obstructions and stairways. Avoid dark patches and large light/dark contrasts. Localised lighting of areas adjacent to footpaths - shrubberies, trees and flowerbeds - will help to improve the feeling of safety. Vandal and impact resistant luminaires will be required. Bollards, building mounted and ground inset uplights can help reduce the visual impact of lighting equipment during the day.

Energy efficiency

Pathway

Size: 61.5 x 2.5m **Operating hours:** 4380hrs **Illuminance:** 5lux

Fitting used: Vandal resistant amenity lanterns



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

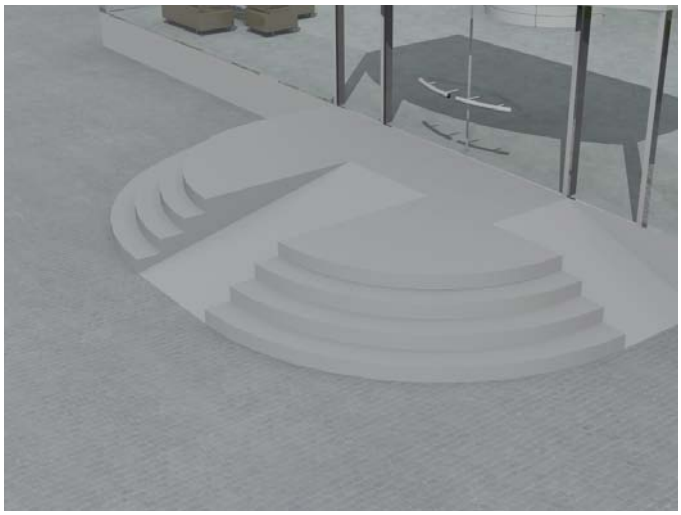
Outdoor Stairs

Energy saving ideas

Creating the right environment

By offering design advantages as well as flexibility and efficiency, LEDs present the perfect solution for footpaths and walkways. Whether you need to guide new visitors or highlight points of interest, LEDs create endless possibilities. Crucially their small size and low surface temperatures give you unrivalled flexibility for great lighting effects that are safe.

Buried walkover lights such as E/Fact LED are cool to touch, the lighting surface is under 40°C, and holographic film technology efficiently shapes the light beam, thus producing a variety of effects. They can create exciting lighting effects, guidance and interest, particularly when using colour and movement provided by the DMX colour changing RGB versions, driven by control systems such as Sensa.



Taking control

Timed - As part of an outdoor lighting system pathways should have sufficient illumination to allow users move safely, but only during hours when the building is open. Later in the evening switch it off using systems such as SENSA.

Product range

For more information on your desired product please select from below:



Leopard LED



E/Fact LED



Mica Slim LED

COMING SOON

Via LED
Jalon LED



D-CO LED Recessed
www.thornlighting.com/DCOR



Good practice

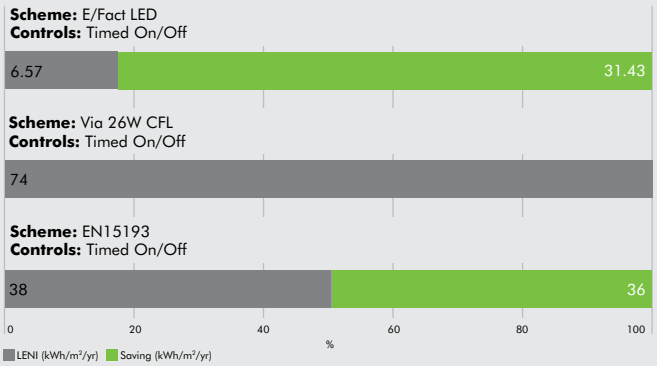
The object of the lighting should promote safe and easy movement of pedestrian's with a feeling of general security and well-being. Lighting levels are determined by the crime risk and the presence of potential obstructions and stairways. Avoid dark patches and large light/dark contrasts. Localised lighting of areas adjacent to footpaths - shrubberies, trees and flowerbeds - will help to improve the feeling of safety. Vandal and impact resistant luminaires will be required. Bollards, building mounted and ground inset uplights can help reduce the visual impact of lighting equipment during the day.

Energy efficiency

Pathway

Size: 10 x 4m **Operating hours:** 4380hrs **Illuminance:** 10lux

Fitting used: Vandal resistant amenity lanterns



LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

Utility Areas

Energy saving ideas

Creating the right environment

Utility rooms require suitable levels of illumination on vertical and horizontal surfaces such as counters, shelves or cupboards. They need good coverage on vertical surfaces, particularly when searching through storage cupboards or for reading labelling on items or equipment.

Given that they illuminate both the horizontal and vertical planes from the same source, AquaForce II LED and Leopard LED luminaires are a most appropriate solution where an element of cleanliness or sealed luminaire is required, or where the room is small. Luminaires such as Quattro LED offers a solution for dry environments. Their long life (50,000 hours @L70) offers good maintenance savings and when combined with simple Sensa controls the energy reduction can be substantial.



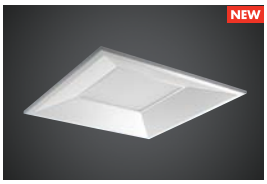
Taking control

Presence detection, Task lighting with absence detection - A large 'catch-all' category but a common feature of these areas is that they tend to have a low activity/occupancy rate but when occupants enter the area they have there arms full. So consider the use of presence detection in preference to absence detection, consider the activity carefully when determining the "time-out" period. As the size of these areas vary considerably consider also the type and location of sensor to get the best performance from the control system.

It may well be appropriate to have a secondary lighting system within the area relating to specific tasks which are manually activated these can be linked to absence detection to maximise energy savings.

Product range

For more information on your desired product please select from below:



Quattro LED



Specline LED



Leopard LED



ImpactForce II LED



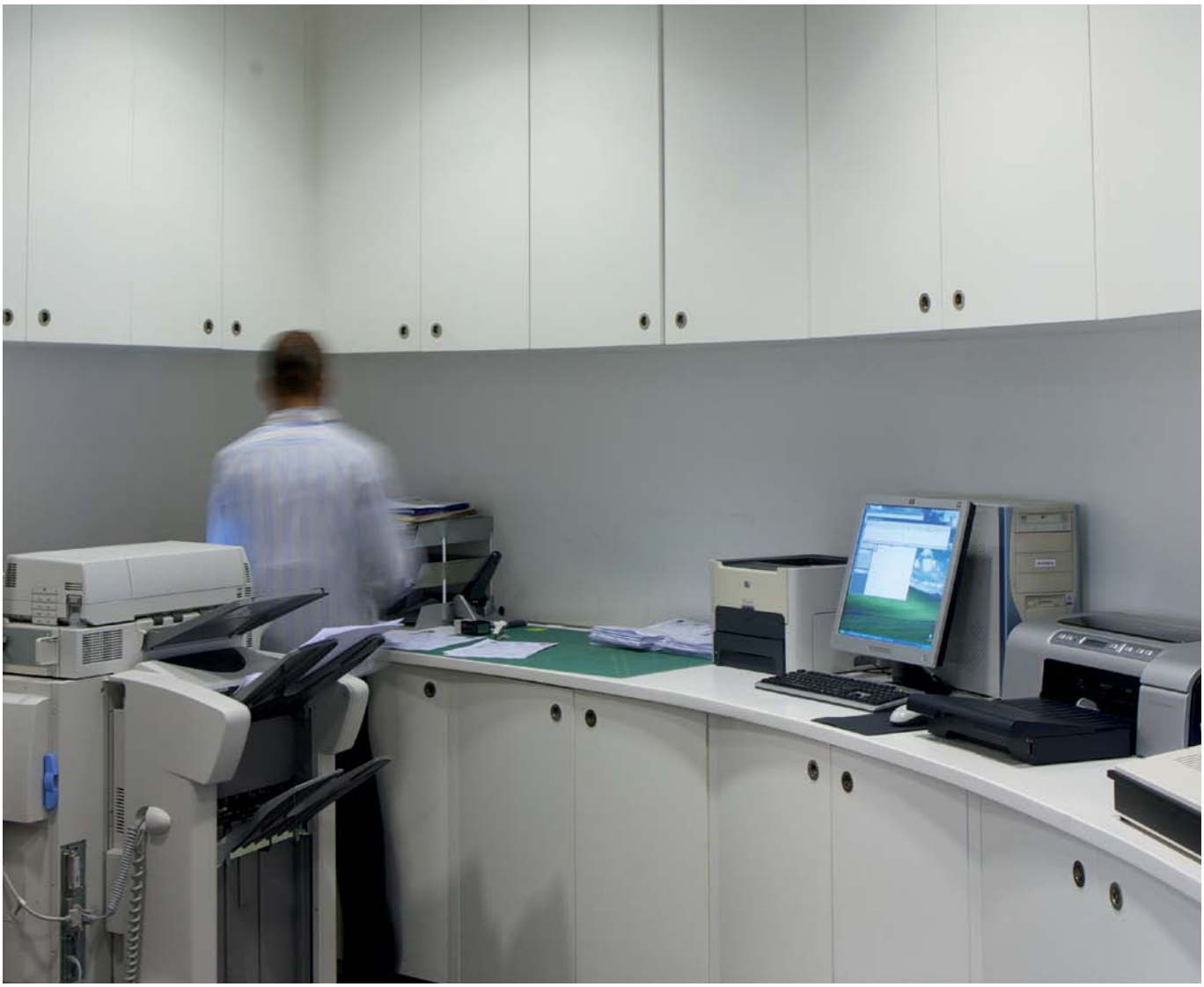
CorrosionForce II LED



AquaForce II LED



Voyager E Bulkhead LED



Good practice

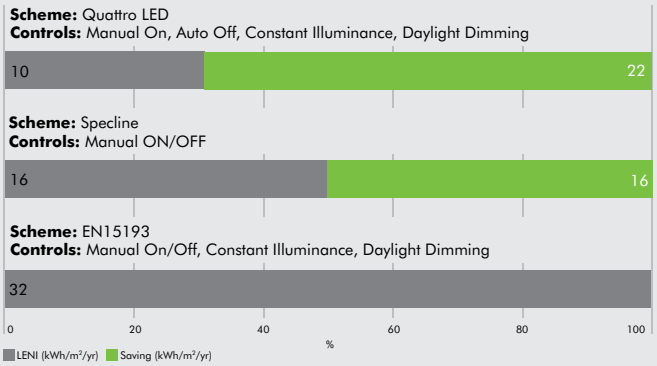
Luminaire layouts may need to be planned according to the location of storage or equipment avoiding significant shadows. A suitable illuminance on vertical surfaces is required if the reading of identification marks or labels is frequently necessary. A suitable method of lighting these areas is to use a number of overhead luminaires with a wide distribution perhaps combined with under cupboard lighting where necessary. Lighting controls should take into account the frequency use of these spaces.

Energy efficiency

Dry Utility Room

Size: 7 x 6 x 3m **Operating hours:** 2340hrs **Illuminance:** 200lux

Fitting used: Modular fittings on regular array

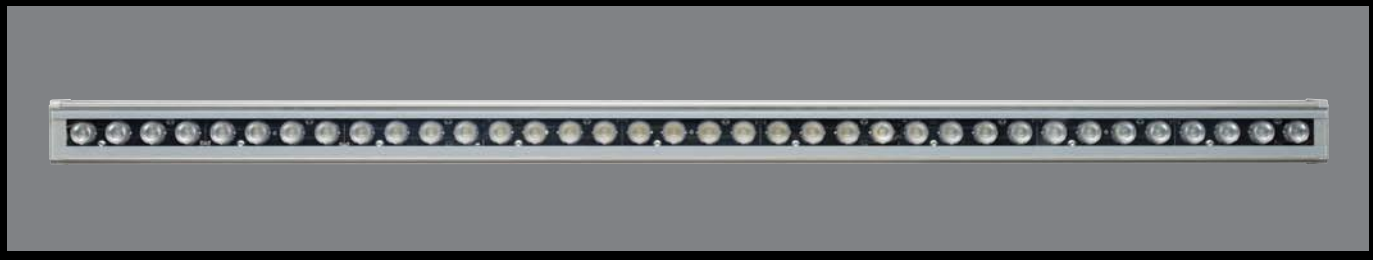


LENI is the Lighting Energy Numeric Indicator, calculated according to EN15193. It is the total annual lighting energy in kWh/m² year, accounting for the energy required when the lighting is in use and active the savings that may achieved through the use of lighting controls the energy required by the controls when the lighting is inactive (the standby load)the energy required to keep emergency lighting operational (battery charging load).

EN15193 provides a table of benchmark LENI values for a variety of applications and the above graphs are comparing possible real solutions with these benchmark figures.

Products









New Products

Menlo³ Circular LED 62
Quattro LED 64
Elevation LED 66
Specline LED 68

Leopard LED 70
Escort LED 72
Novaline LED 74
Danube LED 76
Loire LED 78
Thames LED 80
Club LED 82

ImpactForce II LED 84
CorrosionForce II LED 84
AquaForce II LED 86

Voyager E LED 88

Satin 90
Band² 94
E/Fact LED 98
Mica Slim LED 104

Dyana LED 110
Christian IV LED 112

Lighting Controls

Sensa Range 114
Sensa TSC 116

Existing products

Indoor

Cruz 160 LED www.thornlighting.com/CR16
Chalice 190 LED www.thornlighting.com/CHLD
Base LED www.thornlighting.com/BASE
Base LED Junior www.thornlighting.com/BASEJ
D-CO LED Downlights www.thornlighting.com/DCOD
Lightstream2 www.thornlighting.com/LTSM
Prospector LED www.thornlighting.com/PROL
Tidon LED www.thornlighting.com/TIDN
Glacier II LED www.thornlighting.com/GLCR
Eyekon www.thornlighting.com/EYKN
Voyager LED Series www.thornlighting.com/VYLD
Voyager Sigma www.thornlighting.com/VSIG

Outdoor

Cesar LED www.thornlighting.com/CESA
Contrast LED www.thornlighting.com/CONL
Qba LED www.thornlighting.com/QBLD
D-CO LED Recessed www.thornlighting.com/DCOR
D-CO LED Flood www.thornlighting.com/DCOF
Contrast Mini Pinspot LED www.thornlighting.com/CONM
Milo www.thornlighting.com/MILO
Band www.thornlighting.com/BAND
Alumet Stage LED www.thornlighting.com/ALUS
Adelie www.thornlighting.com/ADLE
Promenade LED www.thornlighting.com/PMLD
Avenue F LED www.thornlighting.com/AVFL
Plurio LED www.thornlighting.com/PLRL
Nella LED www.thornlighting.com/NLLL
Oxane www.thornlighting.com/OXAN

Menlo³ Circular LED NEW

www.thornlighting.com/**MNLC**





Second-generation, circular recessed LED luminaire with superior efficiency credentials and unique visual appeal

- Expands on its predecessor's attributes – high quality efficient light, long life and strong visual interest – by vastly improving performance and efficacy, concurrent with industry LED performance development
- A real alternative to traditional fluorescent equivalents – gives greater lumen output with maximum efficacy (78 Llm/W), yet delivers the complete lighting performance expected of the Menlo³ range
- Greater functionality and control with both emergency and sensor modules integral to the luminaire, allowing easy control of the lit environment and more energy saving opportunities

Applications

- Reception
- Office
- Reception
- Meeting Room
- Conference Room

Greater functionality and control

With both emergency and sensor modules integral to the luminaire, allowing easy control of the lit environment and easy energy saving opportunities.

Mimimum illuminance (lux)	Mounting height (m)	Maximum Spacing (m)			
		Centre to End		Between Centres	
		Trans	Axial	Trans	Axial
0.5	2.5	2.55	2.50	8.65	8.60
	3	2.60	2.60	9.15	9.10

New generation LED solution

Building on the original revolutionary Menlo³C LED version but with vastly improved performance and efficacy, concurrent with industry LED performance development.

	Current products		New
	Menlo³C 4x 14w 96548236	Menlo³C 3200 LED 96239626	Menlo³C LED New HFI
Lumen Output	3552	3200	3700
Efficacy	57.3 Llm/W	66.7 Llm/W	78 Llm/W
Glare (Cd/m²)	3145	2300	<3000

A real alternative to the traditional fluorescent equivalent

Greater lumen output with maximum efficacy, yet with the superior lighting performance expected of the Menlo³ range.



Standards CE EN 60598 IP20 IK03 650°C

Lamps 78 Lm/W

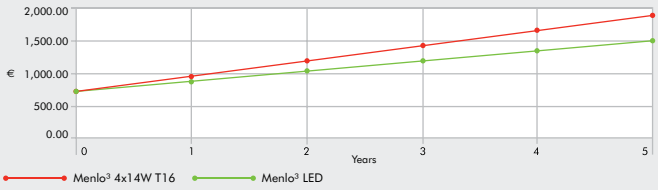
Energy efficiency: Office – 15m x 15m x 2.8m | 500 lx

New Installation

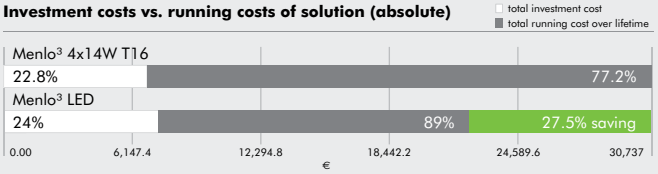
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Menlo³ LED	35	576	0.68	8.71
Menlo³ 4x14W T16	42	537	0.71	11.57

Payback LED vs T16 0.42 years
Savings LED over 10 years €8531

Course of overall costs of solution over lifetime



Investment costs vs. running costs of solution (absolute)

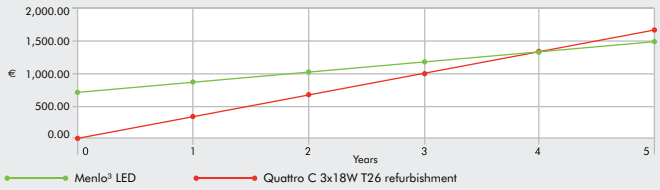


Refurbishment – replace T16 with LED

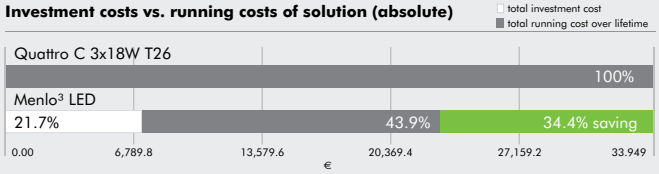
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Menlo³ LED	35	576	0.68	8.71
Quattro C 3x18W T26	64	528	0.68	16.5

Payback LED vs T26 3.9 years
Savings LED over 10 years €11,644

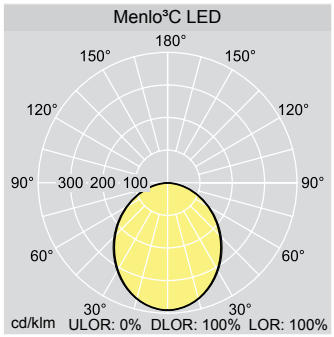
Course of overall costs of solution over lifetime

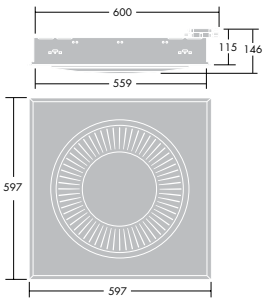


Investment costs vs. running costs of solution (absolute)



Overview





Ordering Guide

Supplied complete with LEDs

Description	Weight (Kg)	SAP Code
MENLO3C LED 3700 HFI WL6 AC 597	4.9	96240369
MENLO3C LED 3700 HFI WL6 E3 AC 597	5.3	96240370
MENLO3C LED 3700 HFI WL6 E3TX AC 597	5.3	96240371
MENLO3C LED 3700 HFI WL5 AC 597	5.3	96241208
MENLO3C LED 3700 HFLI WL6 AC 597	5.3	96240591
MENLO3C LED 3700 HFLI WL6 E3 AC 597	5.4	96240592
MENLO3C LED 3700 HFI WL6 AC 625	5.0	96240593
MENLO3C LED 3700 HFI WL6 E3 AC 625	5.4	96240599
MENLO3C LED 3700 HFI WL6 E3TX AC 625	5.4	96240600
Accessories		
MINI WEDGE (internal fit for plasterboard ceilings)		96218676
CONNECT S6 B Wieland GST 6 pole socket for connecting HFI and HFLI variants		96233052
CONNECT EM S3 R Wieland GST 3 pole socket for connecting E3TX luminaires		96503766

Materials/Finish

Body: white pre painted steel (close to RAL 9010)
Light Chamber/circular diffuser: vacuum-formed opalised acrylic.

Installation/Mounting

Supplied fully assembled with protective film for quick, easy and clean installation. Suitable for lay-in installation into 15mm or 24mm exposed tee ceilings. Unique 'wedge' brackets (included) are fitted externally to allow pull up installation into most exposed tee or concealed grid ceilings without opening the luminaire. Electrical connection is quick and easy via externally mounted connector on back of body. Optic is easily removed and retained by wishbone springs. Plasterboard installation possible with internal fit wedge brackets supplied separately (see accessories ordering guide).

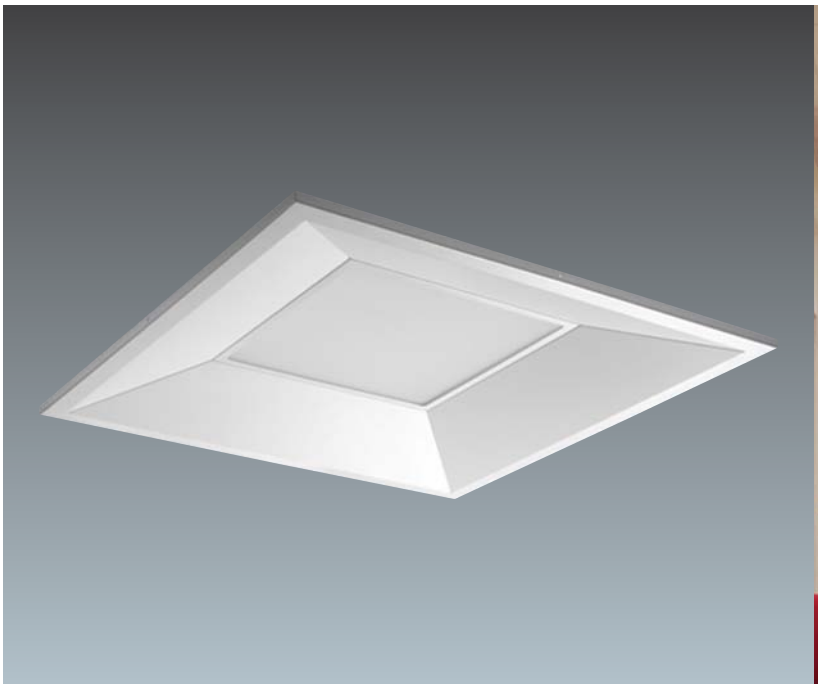
Specification

To specify state: Recessed mounted luminaire for 4 x 11W LED light source with unique 'floating' circular diffuser and light chamber. Suitable for lay-in into exposed tee grids or for pull up into concealed grid ceilings with unique 'mini-wedge' brackets and with external electrical connection electronic digital dimmable gear and options for mini-sensor/LED emergency. For emergency versions, please specify E3 for manual testing or E3TX for SelfTest/Addressable test. As Thorn Menlo³C LED

HFI	Digital dimmable electronic ballast with DALI and DSI function
HFLI	Digital dimmable electronic ballast with DALI mini-sensor
WL6	Wieland GST 6 pole connector
WL5	Wieland GST 5 pole connector
E3	3hr Emergency function, manual test
E3TX	3hr Emergency function, selftest/addressable test

Quattro LED NEW

www.thornlighting.com/**QTRL**





Second generation contemporary recessed LED luminaire with enhanced energy efficiency

Building on the success of the original Quattro LED this new improved range offers many benefits in line with market expectations including:

- Striking sloping edge contemporary design offering you 'something different' as an alternative in recessed LED
- DALI dimming as standard offers great energy saving and easy light control within the environment
- Quick and easy installation due to it's lighter weight, lay-in and plug & play connector
- Similar lighting performance as a traditional fluorescent but using significantly less energy (42W total power)
- High quality light (Ra80 & 4000K)
- Designed at 50,000 hours to maintain 70% of the light output reducing the amount of lamp changes required

Applications

- Office
- Circulation areas
- Classroom
- Meeting rooms
- Conference rooms

Comparison table

	Original Quattro LED	New Quattro LED
Lumen output	3200	3200
Connected load (W)	48	42
Efficacy (Llm/W)	66	76
Weight (kg)	6.5	4.9
Height (mm)	133	96*
Dimming	1-10 volt	DALI
Visual lit appearance	Not uniform	Uniform
Colour Temperature (K)	3000/3500	4000

* WL5 version - without female connectors

Connectors



WL5 - 5 pole Wieland connector



WL6 - 6 pole Wieland connector

Standards

CE EN 60598 IP20 T_a 0 +25 650°C

Lamps

76 Llm/W

RECESSED MODULAR

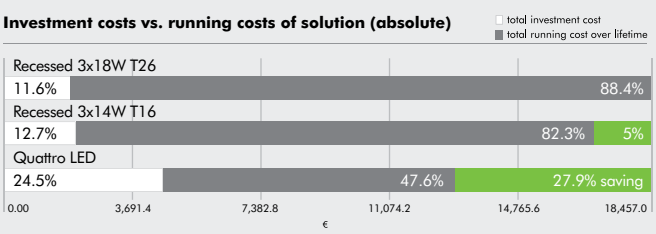
Energy efficiency: General Purpose – 15m x 15m x 2.8m | 300lx

New Installation

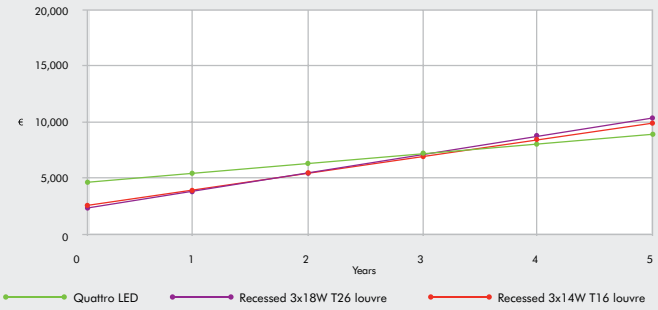
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Quattro LED	25	308	0.70	5.60
Recessed 3x18W louvre	30	301	0.74	7.06
Recessed 3x14W louvre	30	298	0.78	6.27

Payback LED vs T5 3.4 years
Savings LED over 10 years €4,222
Payback LED vs T8 3.1 years
Savings LED over 10 years €5,134

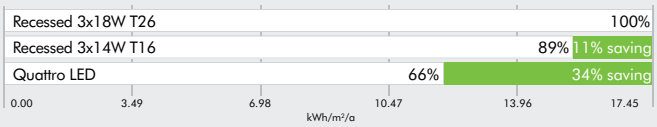
Investment costs vs. running costs of solution (absolute)



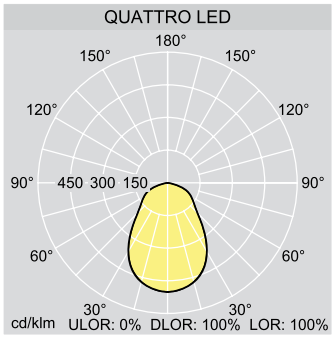
Course of overall costs of solution over lifetime

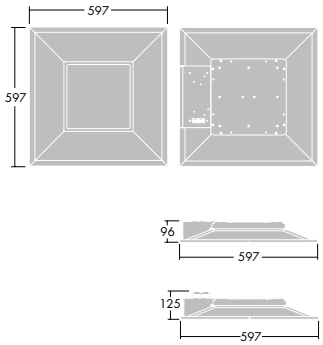


LENI (kWh/m²/a)



Overview





Ordering Guide

Supplied complete with LEDs

Description	Wt (kg)	SAP Code
QUATTRO LED 3200 HFI-X WL5 OP L840	4.9	96241098
QUATTRO LED 3200 HFI-X WL6 OP L840	5.0	96241099
QUATTRO LED 3200 HFI-X WL6 E3 OP L840	5.1	96241101
QUATTRO LED 3200 HFI-X WL6 E3TX OP L840	5.3	96241103

NB: All appropriate female Wieland connectors must be ordered separately

HFI-X DALI Only
WL5 5 Pole Wieland connector
WL6 6 Pole Wieland connector
OP Opal
E3 3 hour emergency
E3TX 3 hour emergency self test/ addressable

Materials/Finish

Body: white painted steel (close to RAL 9016)
Optic: opal PMMA acrylic

Installation/Mounting

Suitable for lay-in (exposed tee 15mm or 24mm) suspended ceilings.
Electrical connection is quick and easy via externally mounted Wieland connectors located on the back of the body. WL5 versions via a flush panel mounted GST 18/5 connector (plug) and WL6 versions via GST 18/6 box T connector (plug). All appropriate female connectors (sockets) must be ordered separately.
E3TX versions require an addition S3 female connector to be ordered. Safety suspension wire supplied.

Specification

To specify state: Recessed LED luminaire with unique sloping edge design, offering a crisp 4000K white light evenly lit diffuser, suitable for lay in exposed tee grids, plug & play via external Wieland connectors, Ra80, 3200 lumen output, DALI dimming and emergency E3/E3TX and 76 Llm/W. As Thorn Quattro LED

Elevation LED NEW

www.thornlighting.com/**ELEL**





The elegant direct/indirect semi-recessed Elevation luminaire range now boasts LEDs for enhanced efficient performance with great lighting quality

- A real alternative over traditional fluorescent equivalents with no compromise: Greater lumen output with maximum efficacy (78 Llm/W) and low luminance for a comfortable working environment
- Upward lighting component provides a more stimulating lit environment, minimising the 'cave-effect' often associated with modular recessed luminaires
- Available with integral mini-sensor and emergency functionality. Fewer emergency fittings are required compared to fluorescent alternatives thanks to the independent LED's superior coverage.

Applications

- Conference Room
- Restaurant/ Canteen
- Circulation Areas
- Office
- Classroom
- Meeting Room

Brighter lit environment

Subtle semi-recessed wings reflect light up to the ceiling creating a more stimulating environment, avoiding the 'cave-effect' often associated with recessed luminaires.





Real alternative to traditional fluorescent equivalent

Greater lumen output with maximum efficacy, yet with low luminance levels still ensuring a comfortable working environment

	Current products	New
	Elevation 2x24 HFD 96239006	Elevation LED HFI
Lumen Output	2835	3700
Efficacy	55.6 Llm/W	78 Llm/W
Glare (Cd/m²)	<3000	<3000

Available with integral mini-sensor and emergency functionality

Using an independent LED light source with extended coverage compared to fluorescent versions, a reduced number of fittings are required to ensure a compliant emergency lighting sceme. Discrete integral sensor allows greater control to further maximise cost and energy savings.





Mimimum illuminance (lux)	Mounting height (m)	Maximum Spacing (m)			
		Centre to End		Between Centres	
		Trans	Axial	Trans	Axial
0.5	2.5	2.55	2.50	8.65	8.60
	3	2.60	2.60	9.15	9.10

Standards

CE EN 60598 IP20 IK03 $T_{a\ +25}^{\ 0}$ 650°C

Lamps

78 Lm/W

RECESSED MODULAR

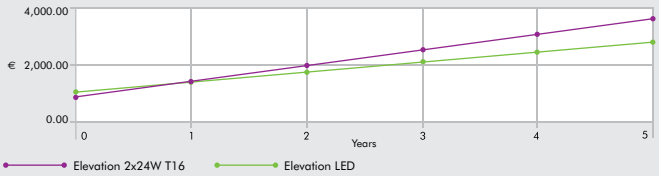
Energy efficiency: Classroom - 7.8m x 7.1m x 2.8m | 300 lx

New Installation

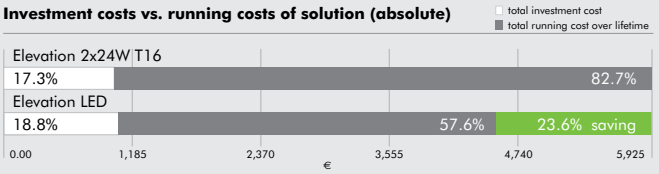
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Elevation LED	6	372	0.60	5.85
Elevation 2x24W T16	9	341	0.75	8.29

Payback LED vs T16 0.6 years
Savings LED over 10 years €1394

Course of overall costs of solution over lifetime



Investment costs vs. running costs of solution (absolute)



Refurbishment - replace T16 with LED

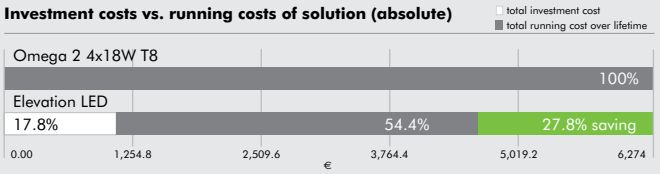
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Elevation LED	6	372	0.60	5.85
Omega 2 4x18W T8	8	354	0.66	11.27

Payback LED vs T26 3.9 years
Savings LED over 10 years €1,743

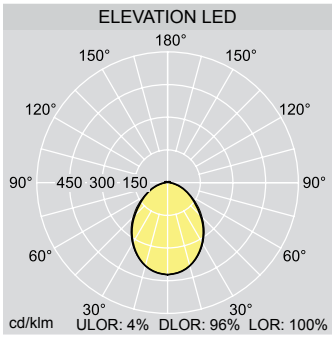
Course of overall costs of solution over lifetime

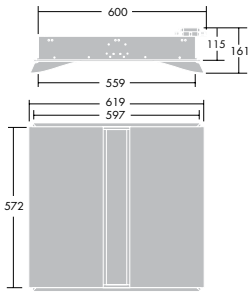


Investment costs vs. running costs of solution (absolute)



Overview





Ordering Guide

Supplied complete with LEDs

Description	Weight (Kg)	SAP Code
ELEVAT LED 3700 HFI MPT AC WL6 597	5.5	96240375
ELEVAT LED 3700 HFI MPT AC WL5 597	5.5	96241209
ELEVAT LED 3700 HFI E3 MPT AC WL6 597	5.9	96240376
ELEVAT LED 3700 HFI E3TX MPT AC WL6 597	5.9	96240377
ELEVAT LED 3700 HFLI MPT AC WL6 597	5.9	96240595
ELEVAT LED 3700 HFLI E3 MPT AC WL6 597	6.0	96240596
ELEVAT LED 3700 HFI MPT AC WL6 625	5.6	96240601
ELEVAT LED 3700 HFI E3 MPT AC WL6 625	6.0	96240602
ELEVAT LED 3700 HFI E3TX MPT AC WL6 625	6.0	96240603
Accessories		
MINI WEDGE (internal fit for plasterboard ceilings)		96218676
CONNECT S6 B Wieland GST 6 pole socket for connecting HFI and HFLI variants		96233052
CONNECT EM S3 R Wieland GST 3 pole socket for connecting E3TX luminaires		96503766
GRIPPLE SAFETY WIRE		96239327

Materials/Finish

Diffuser: perspex frosted diffuser and PMMA axial prismatic lens
Wings: reeded opal acrylic
Body & Reflectors: white painted steel (close to RAL9010)

Installation/Mounting

Suitable for lay-in (exposed tee 15 and 24mm) suspended ceilings.
Suitable for pull up installation (concealed tee) to suspended ceilings using wedge brackets (supplied), fitted externally. Internal fit wedges for plasterboard to be ordered separately.
Electrical connection via panel mounted Wieland GST male connector (plug).
Appropriate female sockets and T connectors to be ordered separately (see accessories ordering guide).
Provision for gripple wire in the body. Wire to be ordered separately (see accessories ordering guide)

Specification

To specify state: High performance semi-recessed LED luminaire with opal wings and central MPT optic with electronic digital dimmable gear and options for mini-sensor/LED emergency. For emergency versions, please specify E3 for manual testing or E3TX for SelfTest/Addressable test. As Thorn Elevation LED.

HFI	Digital dimmable electronic ballast with DALI and DSI function
HFLI	Digital dimmable electronic ballast with DALI mini-sensor
WL6	Wieland GST 6 pole connector
WL5	Wieland GST 5 pole connector
E3	3hr Emergency function, manual test
E3TX	3hr Emergency function, SelfTest/Addressable test

Specline LED NEW

www.thornlighting.com/**SPLD**





A recessed LED modular with a choice of optics for optimum lighting of offices and retail spaces, ideal for replacing 4x18W T8 and 4x14W T5 installations

- The combination of high-efficacy LED module and high-performance optics delivers up to 3700 luminaire lumens while achieving 79 Llm/W with a connected load per fitting of 47W
- Choice of two optics (OP = retail, MPT = office) for different application requirements
- Lay in/pull up installation complies with most ceiling types
- Plug & Play connection as standard with Wieland connectors
- Available with emergency lighting and HFI (DSI/DALI compatible) dimming options

Applications

- Circulation areas
- Offices
- Meeting rooms
- Utility areas

Choice of two optics



Micro prism optic



Opal diffuser

Emergency luminaire spacing comparison

Specline LED with integral emergency LED
For 0.5 lux open area

Maintenance Factor	BFL	Mounting height (m)	Maximum Spacing (m)			
			Centre to End		Between Centres	
			Trans	Axial	Trans	Axial
1	1	2.5	2.55	2.50	8.65	8.60
		3	2.60	2.60	9.15	9.10

Standards

CE EN 60598 EN 60598 -2-22 IP40 IK02 T_a25 650°C

Lamps

79 Lm/W

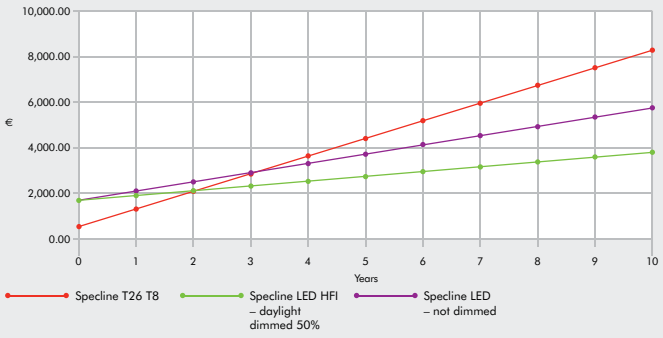
Energy efficiency: Room dimension: 7 x 7 m, 2.4 m height | 500lx

New Installation

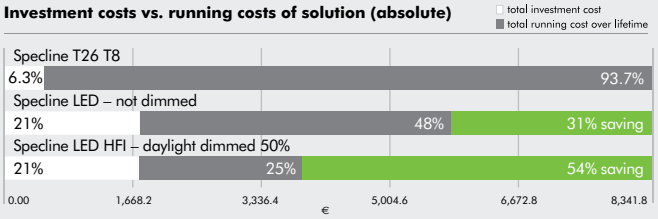
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Specline LED OP	9	533	0.80	8.08
Recessed square 4x18 T26 (T8) DMB with magnetic ballast	9	506	0.79	13.59

Payback LED vs HF **2.4 years**
Savings LED over 10 years **€4,533**

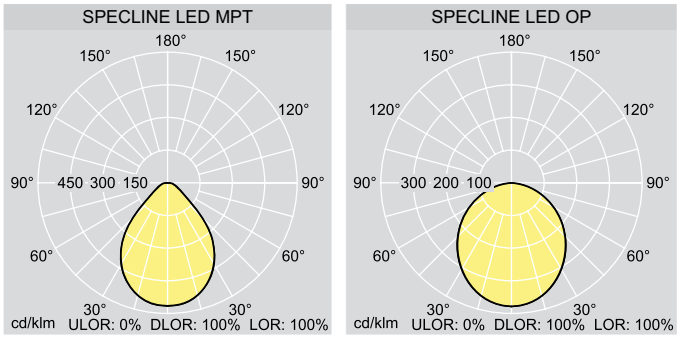
Course of overall costs of solution over lifetime

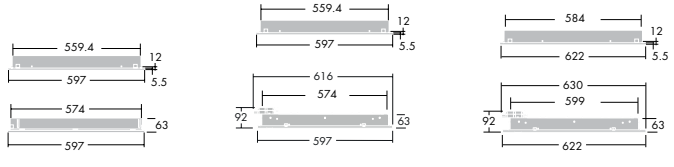


Investment costs vs. running costs of solution (absolute)



Overview





Materials/Finish

Body: steel sheet, white
Diffuser: opal acrylic
Optic: micro prism acrylic (PMMA)

Installation/Mounting

Suitable for most 15 or 24 mm exposed tee ceilings, the luminaire simply lays onto the ceiling grid for quick installation. Pull up installation with external wedge KIT possible. Not suitable for plasterboard ceilings.

Specification

To specify state: Recessed modular LED luminaire for lay in/pull up installation with MPT optic or opal diffuser delivering 3500 / 3700 lm. As Thorn Specline LED.

Ordering Guide

Supplied complete with preinstalled LED modules, 4000K, CRI >80

	Description	Wt (kg)	HFI	HFI E3
597 x 597 mm	SPECLINELED 3500 MPT WL5 L840 597	5.0	96241064	-
	SPECLINELED 3700 OP WL5 L840 597	5.0	96241065	-
	SPECLINELED 3500 MPT WL6 L840 597	5.0	96241070	96241086
	SPECLINELED 3700 OP WL6 L840 597	5.0	96241071	96241087
625 x 625 mm	SPECLINELED 3500 MPT WL6 L840 625	5.2	96241090	96241094
	SPECLINELED 3700 OP WL6 L840 625	5.2	96241091	96241095
	Accessory	**Wt (kg)**	**SAP Code**	
	EXTERNAL WEDGE KIT (4)	0.1	59003418	

MPT micro prism optic
OP opal diffuser
WL5 Wieland GST 5 pole connector
WL6 Wieland GST 6 pole connector
L840 including pre-installed LED-module with CRI>80 and neutral white CCT (4000K)
597 for modular square T-ceilings 600x600 mm
625 for modular square T-ceilings 625x625 mm
HFI high frequency - dimmable - addressable (DALI and DSI)
E3 3-hour LED emergency

Leopard LED NEW

www.thornlighting.com/**LPRD**





An IP65 LED circular bulkhead offering a true alternative to 28W 2D bulkheads

- A real equivalent to traditional fluorescent versions – energy efficiency > 60 Llm/W
- LED lifetime of over 50,000 hrs greatly reduces maintenance costs compared to fluorescent alternatives
- Available with presence sensor options (can control up to 3 'slave' bulkheads)
- Available as Emergency E3 with a dedicated emergency LED

Applications

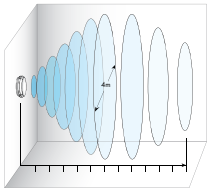
- Corridor/ Staircases
- Pathways
- Cycle Bays
- Building Surroundings
- Toilets
- Utility areas

Leopard sensor

Instant light when the area becomes occupied, Leopard sensor has an integrated presence sensor with easy adjustments for sensitivity, lux levels and activation time

- Suitable for use in areas of infrequent occupancy
- Integral microwave detector for motion and ambient light (5 – 1,000 lux)
- Can operate up to three additional 'slave' Leopard Bulkheads
- Sensor can be adjusted for operation between 2secs and 1,200secs
- Microwave detector sensitivity adjustable between 20% and 100%
- Forward detection range up to 10m (depending on location and sensitivity adjustment)
- 4m diameter detection footprint
- Available with or without emergency mode control gear

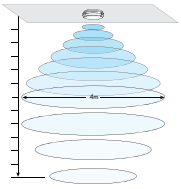
Wall mounted detection zone
10m from face of fitting



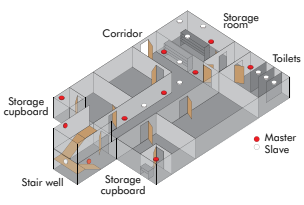
Microwave detector showing adjustments for duration, sensitivity and ambient light level



Ceiling mounted detection zone
10m from face of fitting



Typical layout of SwitchLite 'master' and standard 'slave' luminaires



Standards

CE EN 60598 IP65 IK10

T_a 0 +25 850°C

Lamps

60 Lm/W



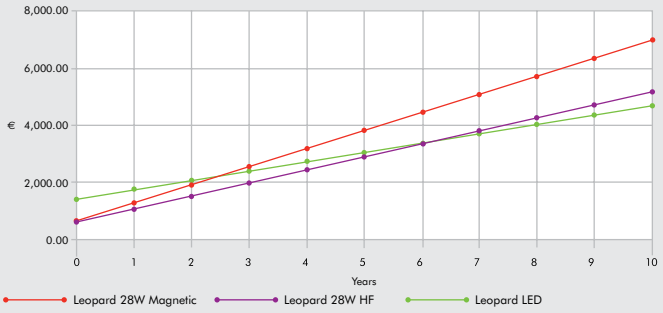
Energy efficiency: Corridor – 20m x 2m x 2.4m | 200 lx

New Installation

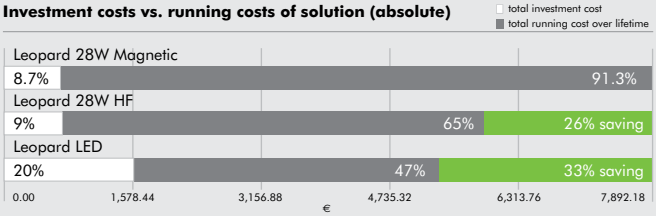
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Leopard LED	16	206	0.66	8.2
Leopard LED HF	16	208	0.67	10
Leopard LED 28W Magnetic	17	208	0.69	15.30

Payback LED vs Magnetic **2.4 years**
Savings LED vs Magnetic over 10 years **€2,328**

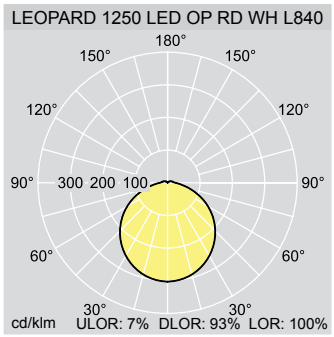
Course of overall costs of solution over lifetime

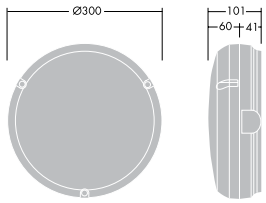


Investment costs vs. running costs of solution (absolute)



Overview





Ordering Guide

Supplied complete with LEDs

Description	Wt (kg)	SAP Code
LEOPARD 1250 LED OP RD WH L840	1.3	96240254
LEOPARD 1250 LED MWS OP RD WH L840	1.3	96240255
LEOPARD 1250 LED E3 OP RD WH L840	1.6	96240256
LEOPARD 1250 LED MWS E3 OP RD WH L840	1.6	96240257
Gear Tray for retrofit existing Leopard product		
LEOPARD LED GEAR TRAY L840		96240365
LEOPARD LED GEAR TRAY WITH MWS L840		96240366
LEOPARD LED E3 GEAR TRAY L840		96240367
LEOPARD LED E3 GEAR TRAY WITH MWS L840		96240368

WH White
E3 3hr emergency function, manual test
MWS Microwave detector

Materials/Finish

Body: polycarbonate
Diffuser: opal polycarbonate plastic diffuser, white
Gear tray: pre coated steel

Installation/Mounting

Suitable for surface mounting with rear BESA provision, side entry for through wiring with entry into 3-way terminal block and tool-free gear tray fixation. Sensor options have adjustments for sensitivity, daylight and activated period

Specification

To specify state: IP65 Polycarbonate bulkhead with white base, tool-free gear tray fixation, with opal screw fixed diffuser and LED PCB board.
As Thorn Leopard LED.

Escort LED NEW

www.thornlighting.com/**ESCT**





Highly robust and vandal resistant, IP65 rated LED, bulkhead ensuring minimum energy usage, long life and low maintenance

- A low energy alternative to a compact fluorescent bulkhead
- LED lifetime of over 50,000 hrs massively reduces maintenance costs compared to fluorescent alternatives
- Luminaire lumen output 73 Llm/W
- Tough aluminium body with tamper proof screws – well suited to locations exposed to rough handling

Applications

- Pathways
- Cycle Bays
- Building Surroundings
- Utility areas
- Corridor/ Staircases

Standards

CE EN 60598 IP65 IK10

T_a -5 +25 850°C

Lamps

73 Lm/W



WALL AND CEILING MOUNTED

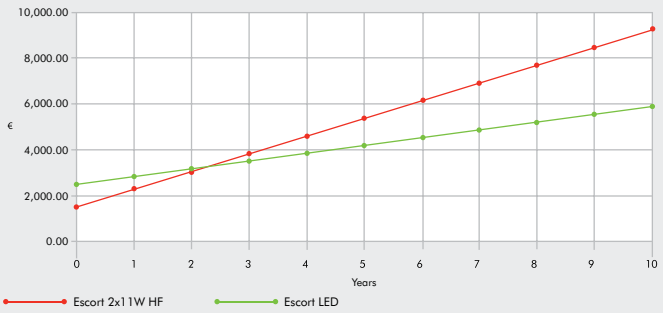
Energy efficiency: Corridor – 20m x 2m x 2.4m | 200 lx

New Installation

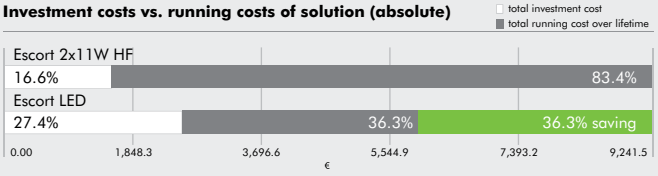
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Escort LED	25	206	0.67	8.44
Escort 2x11 HF	27	200	0.7	18.90

Payback LED vs HF **2.3 years**
Savings LED vs HF over 10 years **€3,351**

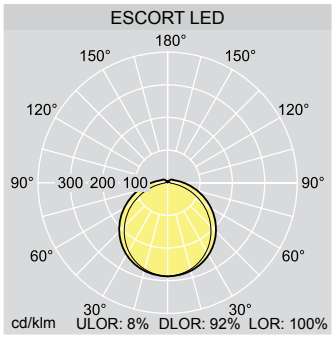
Course of overall costs of solution over lifetime

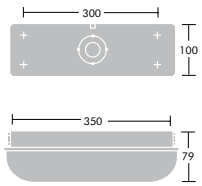


Investment costs vs. running costs of solution (absolute)



Overview





Ordering Guide

Supplied complete with LEDs

Description	Weight (kg)	SAP Code
Escort LED 1000 OP WHI	1.12	96241059

Materials/Finish

Body: die cast aluminium painted white
Diffuser: opal polycarbonate diffuser
Gear tray: metal

Installation/Mounting

Direct wall or ceiling mounting. Drill points on rear for ceiling/wall box/BESA mounting. Ø20mm cable entry at either end and 4 fixing points. 3 way terminal block, 2x2.5mm² capacity. Cable gland and blanking grommets (2) supplied.

Specification

To specify state: Self-contained IP65 exterior bulkhead with LED PCB for standard mains operation. Die cast aluminium body, opal polycarbonate diffuser and tamper proof screws.
As Thorn Escort LED

Novaline LED NEW

www.thornlighting.com/**NOVN**





A slim LED luminaire for wall or ceiling mounting, offering energy saving opportunities with the option of presence sensors.

- Available as Emergency E3 with a dedicated emergency LED
- Presence detection version for instant illumination when required
- Flexible choice from 2000 and 1000 lumen packages
- DALI, wireless option with master/slave and SelfTest/Addressable emergency versions available

Applications

- Corridors/staircases
- Circulation areas
- Toilets
- Meeting rooms

Lamp information

Novaline 1000

- Life time 50,000 hours @L70 Ta 25°C
- 1000lm (17W)
- 59 Llm/W
- 4000K

Novaline 2000

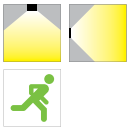
- Life time 50,000 hours @L70 Ta 25°C
- 2000lm (31W)
- 65 L lm/W
- 4000K

Standards

CE EN 60598 IP40 T_a25 850°C

Lamps

59 Llm/W 65 Llm/W

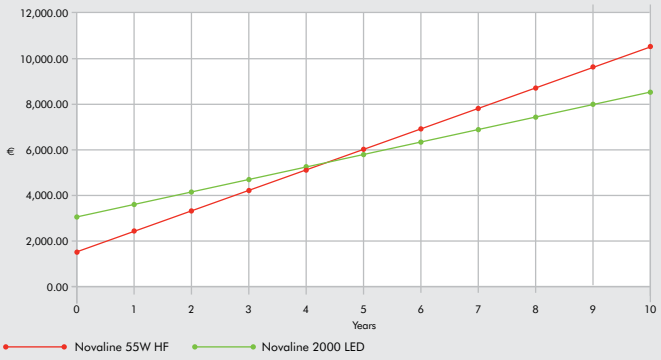


Meeting room – 10m x 4m x 2.8m
500 lx

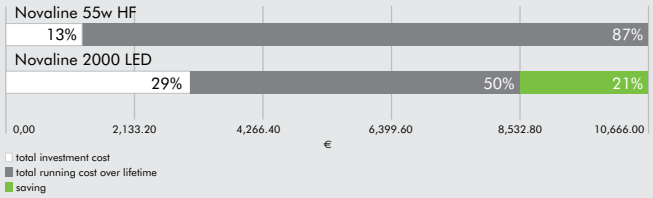
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Novaline LED	18	567	0.76	14.5
Novaline 55W HF	16	568	0.76	25

Payback LED vs HF **4.4 years**
Savings LED vs HF over 10 years **€2,185**

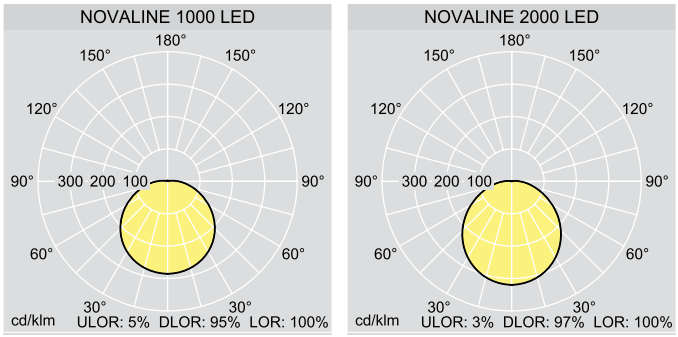
Course of overall costs of solution over lifetime

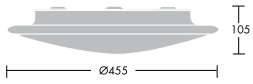


Investment costs vs. running costs of solution (absolute)

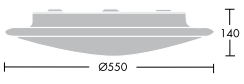


Overview





NOVALINE 1000



NOVALINE 2000

Materials/Finish

Body and bezel: spun aluminium
Diffuser: opal polycarbonate
Body and bezel colours: white and chrome

Installation/Mounting

Suitable for surface mounting. Rear BESA mounting provision with cable entry into 3 way terminal block suitable to accept 2x2.5mm².

Specification

To specify state:
Standard/Emergency circular surface luminaire with spun aluminium body and bezel in white or chrome.
Polycarbonate opal diffuser and PCB board with LEDs.
As Thorn Novaline LED.

Ordering Guide

Supplied complete with LEDs

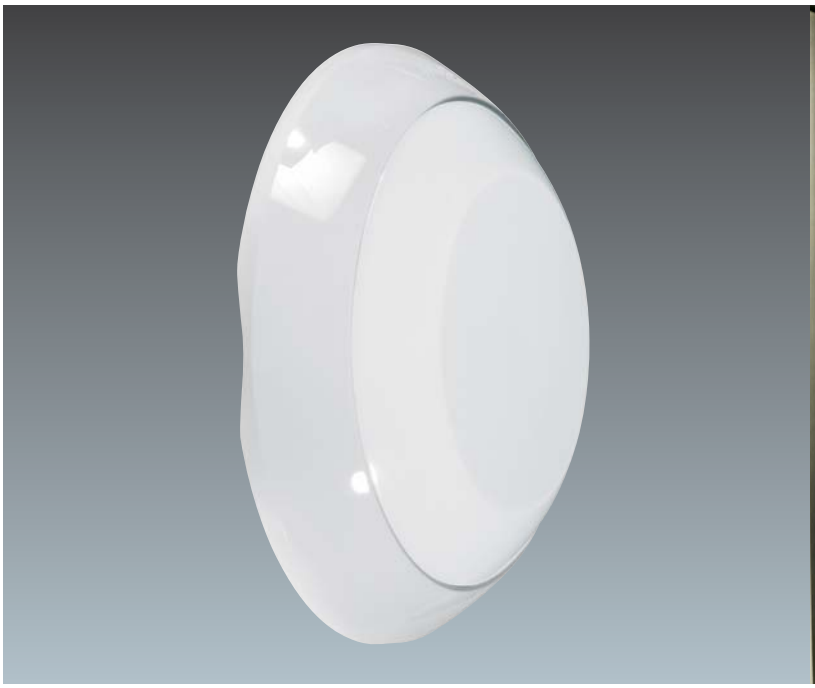
Description	Weight (kg)	SAP Code
Small version		
NOVALINE 1000 LED HF OP RD WHI L840	2.12	96240705
NOVALINE 1000 LED HF MWS OP RD WHI L840	2.20	96240706
NOVALINE 1000 LED HF E3 OP RD WHI L840	2.72	96240707
NOVALINE 1000 LED HF MWS E3 OP RD WHI L840	2.80	96240708
NOVALINE 1000 LED HF OP RD CHR L840	2.12	96241325
NOVALINE 1000 LED HF MWS OP RD CHR L840	2.20	96241326
NOVALINE 1000 LED HF E3 OP RD CHR L840	2.72	96241327
NOVALINE 1000 LED HF MWS E3 OP RD CHR L840	2.80	96241328

Description	Weight (kg)	SAP Code
Large version		
NOVALINE 2000 LED HF OP RD WHI L840	3.62	96241217
NOVALINE 2000 LED HF MWS OP RD WHI L840	3.70	96241218
NOVALINE 2000 LED HF E3 OP RD WHI L840	4.22	96241219
NOVALINE 2000 LED HF E3 MWS OP RD WHI L8	4.30	96241220
NOVALINE 2000 LED HF OP RD CHR L840	3.62	96241321
NOVALINE 2000 LED HF MWS OP RD CHR L840	3.70	96241322
NOVALINE 2000 LED HF E3 OP RD CHR L840	4.22	96241323
NOVALINE 2000 LED HF E3 MWS OP RD CHR L840	4.30	96241324

CHR Chrome bezel E3 3hr Emergency
WHI White bezel MWS Microwave detector

Danube LED NEW

www.thornlighting.com/**DNBE**





A stylish compact wall or ceiling mounted luminaire that offers an energy efficient alternative to traditional wall fittings

- Quick Fix Bracket reduces installation time
- 3 hour Emergency options available
- 75 Llm/W offers an energy efficient alternative to the traditional wall luminaire
- DALI versions available

Applications

- Corridors/staircases
- Circulation areas
- Toilets
- Utility rooms

Quick Fix Bracket



Lamp information

- Life time 50,000 hours @L70 Ta 25°C
- 1200lm (16W)
- 75 Llm/W
- 4000K

Standards

CE EN 60598 IP65 IK07 850°C

Lamps

75 Lm/W

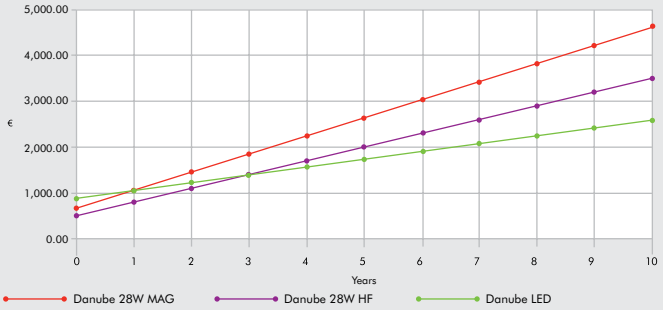
Energy efficiency: Wash room – 6m x 4m x 2.8m | 200 lx

New Installation

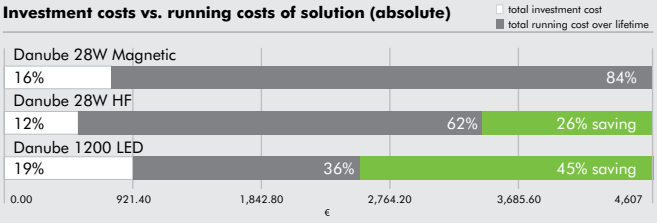
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Danube 1200 LED	8	264	0.57	5.33
Danube 28W HF	8	289	0.6	9.67
Danube 28W Magnetic	8	289	0.6	12

Payback LED vs HF **2.8 years**
Payback LED vs Magnetic **0.7 years**
Savings LED vs Mag over 10 years **€2,036**

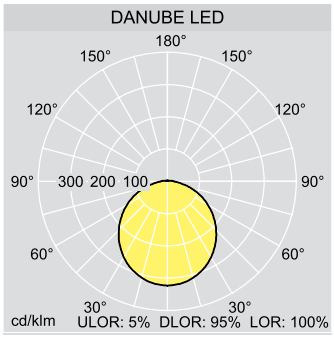
Course of overall costs of solution over lifetime

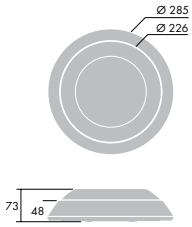


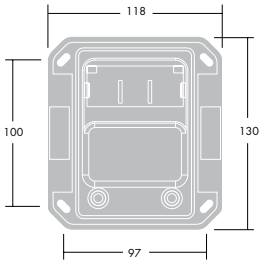
Investment costs vs. running costs of solution (absolute)



Overview







Materials/Finish

Body: die cast aluminum base
Diffuser: Polycarbonate, opal
Bezel: Polycarbonate, white

Installation/Mounting

Suitable for surface mounting on a wall or ceiling. Bracket is fixed onto mounting surface by 4 oblong holes (4.5mm x 10mm). Mains connection via 6 x 2 x 2.5mm² terminal block. Light Box mechanically and electrically auto-connected to the Quick Fix Bracket. For loop wiring there are two 20mm cable entry holes on the Quick Fix Bracket

Specification

To specify state:
Standard/Emergency circular surface luminaire with aluminium base. Polycarbonate opal diffuser and PCB board with LEDs. As Thorn Danube LED.

Ordering Guide

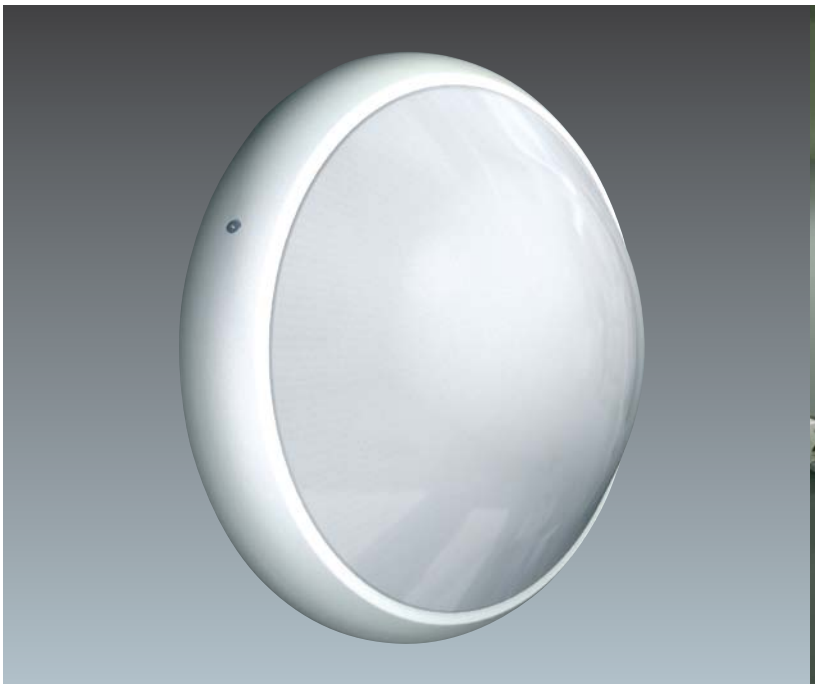
Supplied complete with LEDs

Description	Weight (kg)	SAP Code
DA 1200 LED HF OP RD WHI L840	1.76	96241362
DA 1200 LED HF E3 OP RD WHI L840	2.01	96241363

WHI White bezel
E3 3 hour emergency

Loire LED NEW

www.thornlighting.com/**LOIR**





A decorative LED luminaire that gives excellent energy efficiencies and minimal maintenance

- Quick Fix Bracket reduces installation time
- 3 hour Emergency options available
- Energy efficient with 75 Llm/W
- DALI versions available

Applications

- Corridors/staircases
- Circulation areas
- Toilets
- Utility rooms

Quick Fix Bracket



Lamp information

- Life time 50,000 hours @L70 Ta 25°C
- 1200lm (16W)
- 75 Llm/W
- 4000K

Standards

CE EN 60598 IP65 IK07 850°C

Lamps

75 Lm/W

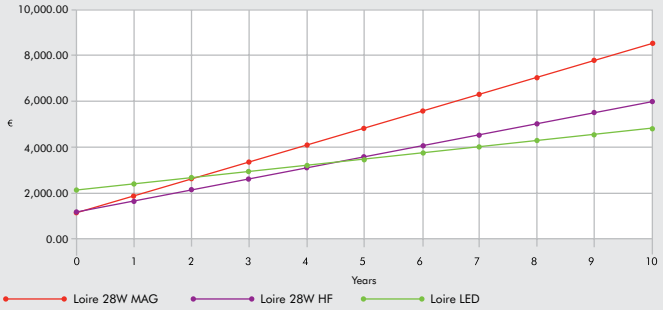
Energy efficiency: Waiting room – 10m x 5m x 2.4m | 200 lx

New Installation

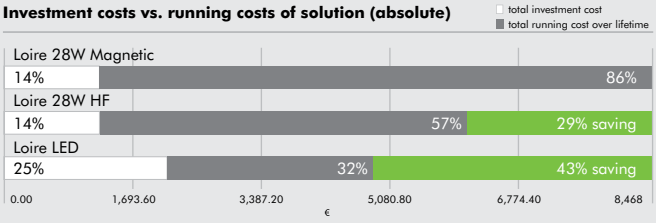
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Loire 1200 LED	18	236	0.8	5.76
Loire 28W HF	15	226	0.8	8.7
Loire 28W Magnetic	15	226	0.8	10.8

Payback LED vs HF **4.4 years**
Payback LED vs Magnetic **2.1 years**
Savings LED vs Mag over 10 years **€3,598**

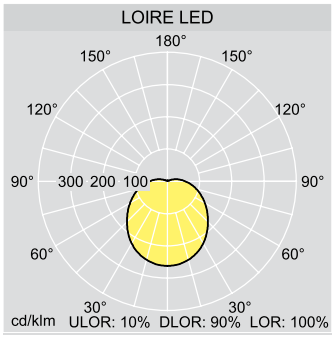
Course of overall costs of solution over lifetime

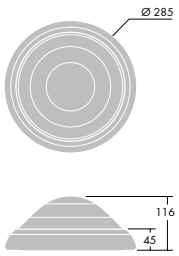


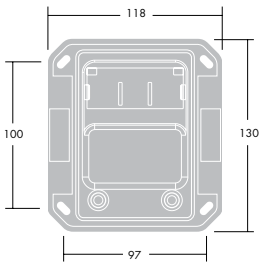
Investment costs vs. running costs of solution (absolute)



Overview







Materials/Finish

Body: die cast aluminum base
Diffuser: Polycarbonate, opal
Bezel: Polycarbonate, white finish

Installation/Mounting

Suitable for surface mounting on a wall or ceiling. Bracket is fixed onto mounting surface by 4 oblong holes (4.5mm x 10mm). Mains connection via 6 x 2 x 2.5mm² terminal block. Light Box mechanically and electrically auto-connected to the Quick Fix Bracket. For loop wiring there are two 20mm cable entry holes on the Quick Fix Bracket

Specification

To specify state:
Standard/Emergency circular surface luminaire with aluminium base. Polycarbonate opal diffuser and PCB board with LEDs. As Thorn Loire LED.

Ordering Guide

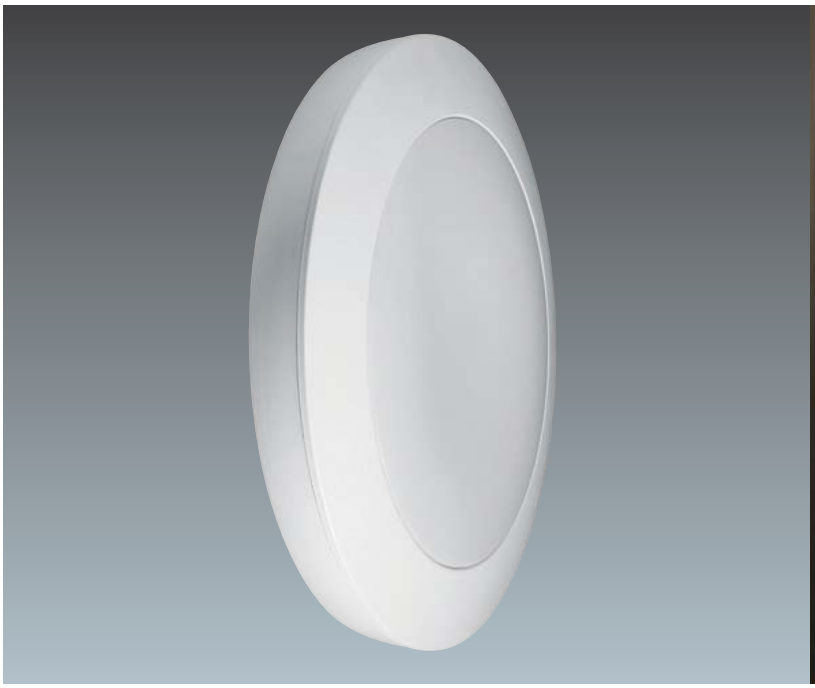
Supplied complete with LEDs

Description	Weight (kg)	SAP Code
LO 1200 LED HF OP RD WHI L840	1.79	96241358
LO 1200 LED HF E3 OP RD WHI L840	2.04	96241359

WHI White bezel
E3 3 hour emergency

Thames LED NEW

www.thornlighting.com/**THMS**





Elegant LED luminaire for wall and ceiling mounting that offers an energy efficient alternative to traditional light sources

- Quick Fix Bracket reduces installation time
- 3 hour Emergency options available
- Energy efficient with 62.5 Llm/W
- DALI versions available

Applications

- Corridors/staircases
- Circulation areas
- Toilets
- Utility rooms

Silver bezel



Quick Fix Bracket



Lamp information

- Life time 50,000 hours @L70 Ta 25°C
- 1000lm (16W)
- 62.5 Llm/W
- 4000K

Standards

CE EN 60598 IP44 IK09 850°C

Lamps

62.5 Lm/W

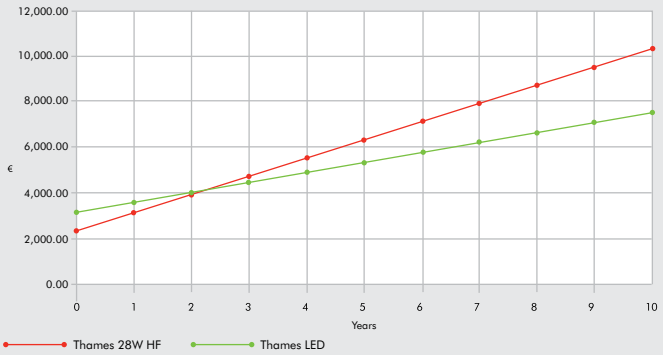
Energy efficiency: Corridor – 20m x 2m x 2.8m | 150 lx

New Installation

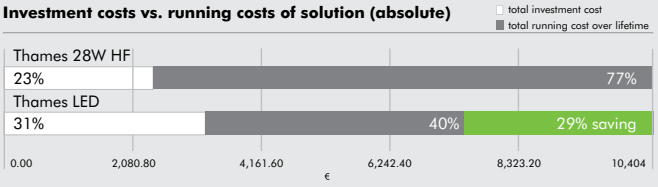
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Thames 1000 LED	22	157	0.72	8.8
Thames 28W HF	23	156	0.68	16.7

Payback LED vs HF **2.4 years**
Savings LED vs HF over 10 years **€2,930**

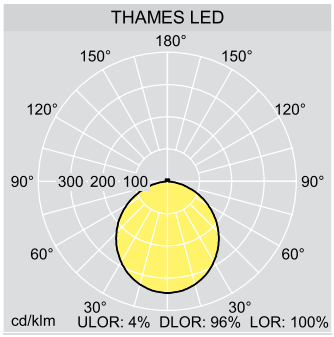
Course of overall costs of solution over lifetime

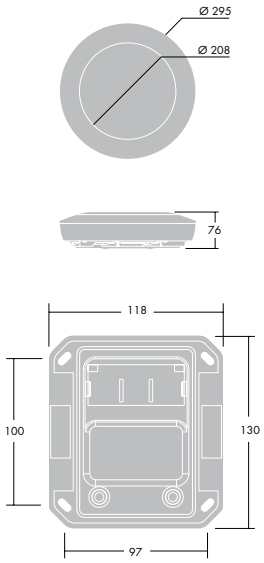


Investment costs vs. running costs of solution (absolute)



Overview





Materials/Finish

Body: die cast aluminum base
Diffuser: Polycarbonate, opal
Bezel: Steel, silver and white finish

Installation/Mounting

Suitable for surface mounting on a wall or ceiling. Bracket is fixed onto mounting surface by 4 oblong holes (4.5mm x 10mm). Mains connection via 6 x 2 x 2.5mm² terminal block. Light Box mechanically and electrically auto-connected to the Quick Fix Bracket. For loop wiring there are two 20mm cable entry holes on the Quick Fix Bracket

Specification

To specify state:
Standard/Emergency circular surface luminaire with aluminium base. Steel bezel, Polycarbonate opal diffuser and PCB board with LEDs. As Thorn Thames LED.

Ordering Guide

Supplied complete with LEDs

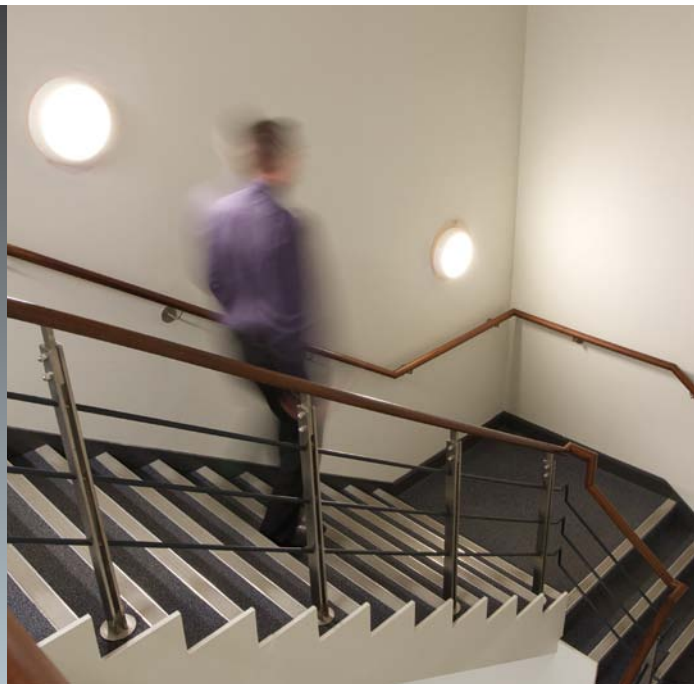
Description	Weight (kg)	SAP Code
TH 1000 LED HF OP RD WHI L840	2.33	96241364
TH 1000 LED HF E3 OP RD WHI L840	2.58	96241365
TH 1000 LED HF OP RD SIL L840	2.33	96241417
TH 1000 LED HF E3 OP RD SIL L840	2.58	96241418

WHI White bezel
SIL Silver bezel
E3 3 hour emergency

Club LED NEW

www.thornlighting.com/**CLUB**





A stylish circular luminaire for wall or ceiling mounting using LEDs for outstanding energy efficiency, longevity and low maintenance

- A low energy replacement for traditional 28W 2D fluorescent bulkheads
- LED lifetime of 50,000 hrs greatly reduces maintenance costs compared to fluorescent alternatives
- Luminaire lumen output 56 Llm/W
- Available as Emergency E3 with a dedicated emergency LED
- Sensor version available as standard or with E3 option
- Sensor has a slave output to drive up to three other Club LEDs

Applications

- Corridor/Staircases
- Toilets
- Utility areas

Choice of bezel finishes



- Chrome (CHR)



- White (WHI)

Club sensor

Instant light when the area becomes occupied, Club sensor has an integrated presence sensor with easy adjustments for sensitivity, lux levels and activation time

- Suitable for use in areas of infrequent occupancy
- Integral microwave detector for motion and ambient light (5 – 1,000 lux)
- Can operate up to three additional 'slave' Club Bulkheads
- Sensor can be adjusted for operation between 2secs and 1,200secs
- Microwave detector sensitivity adjustable between 20% and 100%
- Forward detection range up to 10m (depending on location and sensitivity adjustment)
- 4m diameter detection footprint
- Available with or without emergency mode control gear

Standards

Lamps

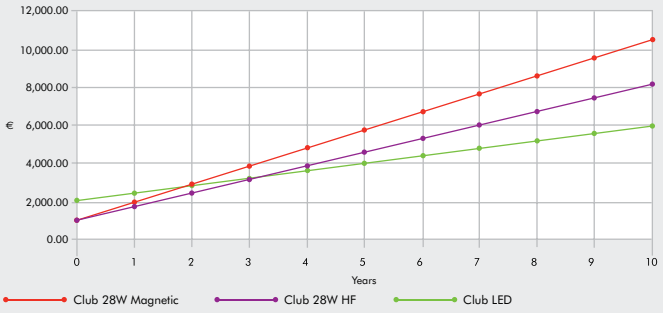
Energy efficiency: Corridor – 20m x 2m x 2.4m | 200 lx

New Installation

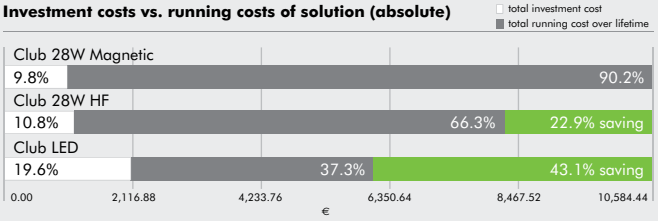
	No. Fittings	Illuminance (lux)	Uniformity	Connected Load (W/m²)
Club LED	24	201	0.67	10.20
Club 28W HF	27	200	0.7	16.88
Club 28W Magnetic	27	200	0.7	24.30

Payback LED vs Magnetic **2 years**
Savings LED vs Magnetic over 10 years **€4,566**

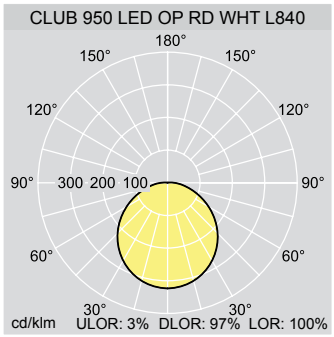
Course of overall costs of solution over lifetime

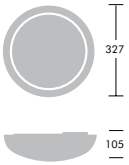


Investment costs vs. running costs of solution (absolute)



Overview





Ordering Guide

Supplied complete with LEDs

Description	Wt (kg)	SAP Code
CLUB 950 LED OP RD WHI L840	1.6	96240359
CLUB 950 LED MWS OP RD WHI L840	1.6	96240360
CLUB 950 LED E3 OP RD WHI3 L840	1.9	96240361
CLUB 950 LED MWS E3 OP RD WHI L840	1.9	96240362
CLUB 950 LED OP RD CHR L840	1.6	96241116
CLUB 950 LED MWS OP RD CHR L840	1.6	96241117
CLUB 950 LED E3 OP RD CHR L840	1.9	96241118
CLUB 950 LED MWS E3 OP RD CHR L840	1.9	96241119

WHI White
CHR Chrome
E3 3hr emergency function, manual test
MWS Microwave detector

Materials/Finish

Body and trim: injection moulded polycarbonate
Diffuser: opal poycarbonate
Body and trim colours: white body with white or polished chrome trim

Installation/Mounting

Suitable for surface mounting. Rear BESA mounting provision with cable entry into 3 way terminal block suitable to accept 2x2.5mm².

Specification

To specify state: Standard/Emergency circular surface luminaire with polycarbonate body and trim in white or chrome. Polycarbonate opal diffuser and LED PCB board. As Thorn Club LED.

ImpactForce II LED NEW
CorrosionForce II LED NEW

www.thornlighting.com/**IMPF** www.thornlighting.com/**CORR**





LED luminaires for low energy lighting in aggressive impact or corrosive environments

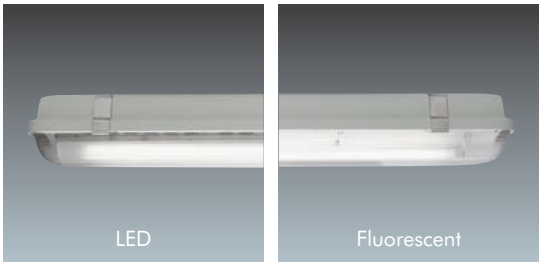
Corrosionforce II and Impactforce II ranges are now available with LED "engines". Designed to perform, rather than just accommodate LEDs offering great features such as:

- High efficacy – 74 Llm/W (57W total power)
- Unique dual light optic for precise wide angled light distributon
- High quality white light (Ra80 & 4000K)
- Future proof removable 'LED engine'
- Uniform lit diffuser appearance similar to fluorescent
- Energy saving dimming
- Long life – Ideal for costly or difficult maintenance areas

Applications

- Cold storage
- Loading bays
- Multi story car parks
- Industrial plants
- Warehouses
- Food processing plants

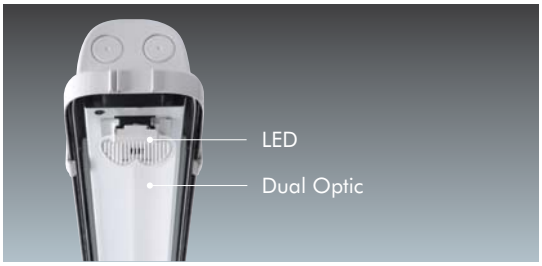
Fluorescent or LED – Spot the difference



Dual Light Optic

The dual optic is optimised for LED technology to ensure:

- Perfect light distribution to give a balanced mix of ceiling, wall and floor illumination
- Uniform lit diffuser appearance – no led spots



Standards

CE EN 60598 IP65 IK02 IK03 IK07 650°C 850°C T_{a} -20 +25

Lamps

74 Lm/W

Energy efficiency

Figure 1. Course of overall costs of solution over lifetime

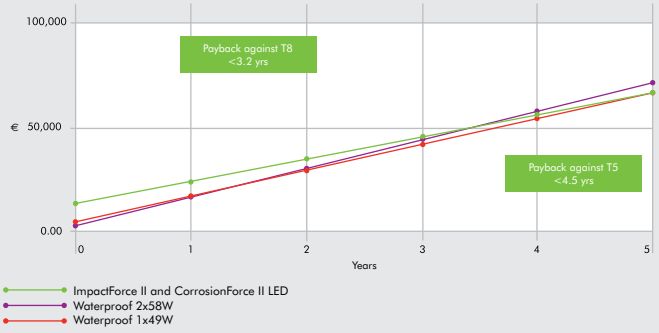


Figure 2. Investment costs vs. running costs of solution (absolute)

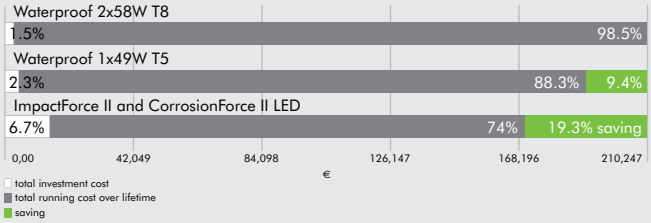
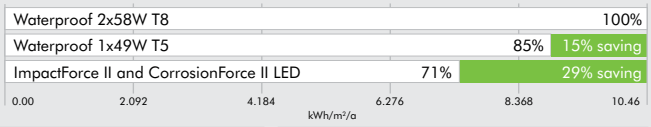


Figure 3. LENI (kWh/m²/a)



LED option reduces energy & CO_2 emissions, making it the 'smarter' choice!

Example assumptions: Project is based on a new installation comparing different T26 (T8), T16 (T5) and LED options operating 16 hours a day, 7 days a week over a 15 year installation lifetime. Different quantities of each luminaire option were needed to meet the same target light level.

Option 1 – ImpactForce II and CorrosionForce II LED using 80 luminaires
Option 2 – Waterproof 2x58W T26 (T8) using 60 luminaires
Option 3 – Waterproof 1x49W T16 (T5) using 100 luminiares

Figure 1 shows ImpactForce II and CorrosionForce II LED payback is less than 3.2 years against fluorescent T26 (T8) and less than 4.5 years against the fluorescent T16 (T5).

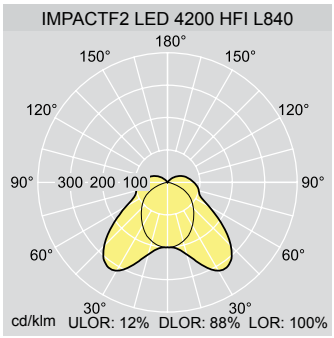
As illustrated in Figure 2, operating ImpactForce II and CorrosionForce II LED luminaires over the lifetime of the project reduces costs by up 19.3%.

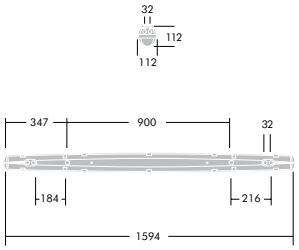
When comparing LENI (kWh/m²/a) in Figure 3, the ImpactForce II and CorrosionForce II LED option uses 29% less energy than the T26 (T8) and 14% less than T16 (T5) options.

Dimming with lighting controls

In most waterproof applications there is not always a need to operate the luminaires 100% at all times as users tend to come in and out of the task space – By combing lighting controls with our standard dimming solution you can still provide good light levels as and when required but also maximise any energy saving potential within the space!

Overview





Ordering Guide

Supplied complete with LEDs

Description	Wt (kg)	SAP Code
IMPACTF2 LED 4200 HFI L840	4	96240298
CORRF2 LED 4200 HFI L840	4	96240299
Accessories		
FORCE2 FIX/CH KIT	0.02	96503167
FORCE2 MCA KIT	0.10	96233817
FORCE2 MRS KIT	0.06	96503169

FIX/CH Chain suspension
MCA Catenary suspension
MRS Rod suspension

Materials/Finish

Canopy: glass-fibre reinforced polyester
Diffuser: PMMA or polycarbonate with linear prisms
Gasket: expanded polyurethane
Toggles: stainless steel
Gear tray: steel, white enamelled finish

Installation/Mounting

Cable entry positions at the back and each end of the fitting. Supplied with IP65 grommet. Stainless steel quick-fix brackets supplied with each luminaire. Stainless steel toggles are captive in the canopy to prevent loss during maintenance. Steel gear tray is retained and suspended by spring latches. Conduit mounting, chain suspension and catenary suspension kits are all available as accessories. Through wiring end to end is not possible but looping in and out at one end is acceptable. Suitable for all indoor plus external 'under cover only' applications.

Specification

To specify state: High performance LED IP65, dust and moisture proof luminaire with GRP canopy, polycarbonate or PMMA diffusers and stainless steel toggles, Removable LED engine offering 4200 lumens, Ra80, 4000K and DALI dimming, long service life of 50,000 hours with 70% light output. Unique dual optic provides wide angled light distribution and uniform visual lit appearance.
As Thorn ImpactForce II LED & CorrosionForce II LED.

AquaForce II LED NEW

www.thornlighting.com/**AQU2**





Aquaforce II is now available with LEDs. Its dual optic ensures it's designed to perform, offering a smart alternative to traditional fluorescents

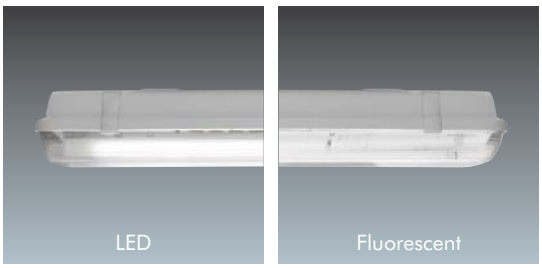
Aquaforce II LED offers great features such as:

- High efficacy – 74 Llm/W (57W total power)
- Unique dual light optic
- Removable 'LED engine'
- Excellent lit diffuser appearance
- Energy saving dimming
- Long life 50,000 hours
- Good light quality (Ra80 & 4000K)

Applications

- Cold storage
- Loading bays
- Multi story car parks
- Industrial plants
- Warehouses
- Food processing plants

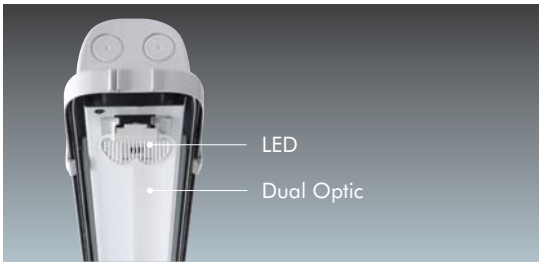
Fluorescent or LED – Spot the difference



Dual Light Optic

The dual optic is optimised for LED technology to ensure:

- Perfect light distribution to give a balanced mix of ceiling, wall and floor illumination
- Uniform lit diffuser appearance – no led spots



Standards

CE EN 60598 IP65 IK08 T_a -20 +25

Lamps

74 Lm/W

850°C

Energy efficiency

Figure 1. Course of overall costs of solution over lifetime

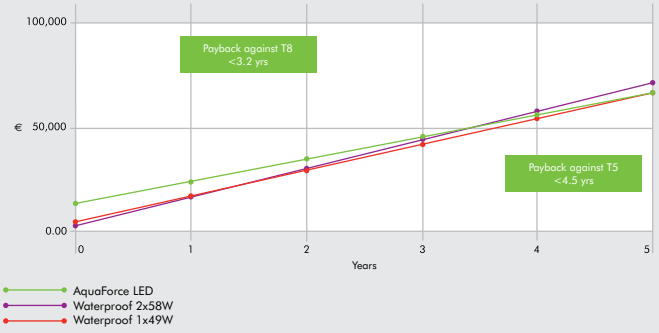


Figure 2. Investment costs vs. running costs of solution (absolute)

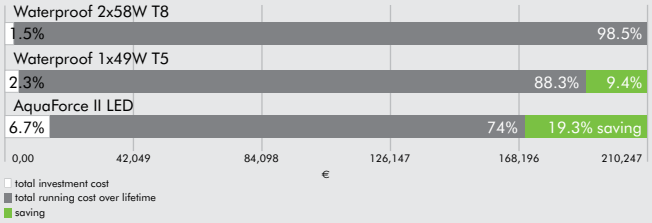
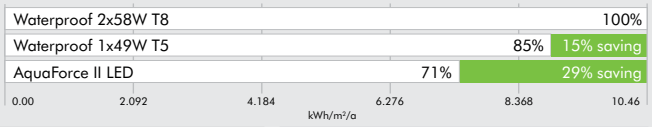


Figure 3. LENI (kWh/m²/a)



LED option reduces energy & CO_2 emissions, making it the 'smarter' choice!

Example assumptions: Project is based on a new installation comparing different T26 (T8), T16 (T5) and LED options operating 16 hours a day, 7 days a week over a 15 year installation lifetime. Different quantities of each luminaire option were needed to meet the same target light level.

Option 1 – AquaForce II LED using 80 luminaires
Option 2 – Waterproof 2x58W T26 (T8) using 60 luminaires
Option 3 – Waterproof 1x49W T16 (T5) using 100 luminaires
Figure 1 shows AquaForce II LED payback is less than 3.2 years against fluorescent T26 (T8) and less than 4.5 years against the fluorescent T16 (T5).

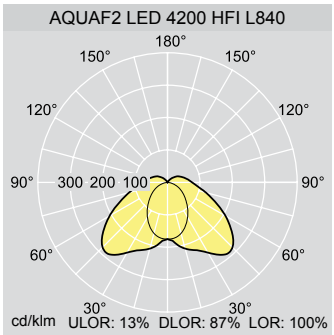
As illustrated in Figure 2, operating AquaForce II LED luminaires over the lifetime of the project reduces costs by up 19.3%.

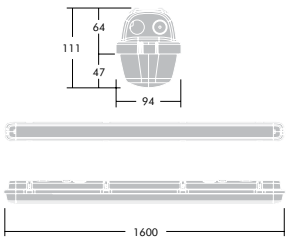
When comparing LENI (kWh/m²/a) in Figure 3, the AquaForce II LED option uses 29% less energy than the T26 (T8) and 14% less than T16 (T5) options.

Dimming with lighting controls

In most waterproof applications there is not always a need to operate the luminaires 100% at all times as users tend to come in and out of the task space – By combing lighting controls with our standard dimming solution you can still provide good light levels as and when required but also maximise any energy saving potential within the space!

Overview





Ordering Guide

Supplied complete with LEDs

Description	Wt (kg)	SAP Code
AQUAF2 LED 4200 HFI L840	4	96240297
Accessories		
FORCE2 FIX/CH KIT	0.02	96503167
FORCE2 MCA KIT	0.10	96233817
FORCE2 MRS KIT	0.06	96503169

FIX/CH Chain suspension
MCA Catenary suspension
MRS Rod suspension

Materials/Finish

Canopy and diffuser: injected moulded fire retardant polycarbonate
Gear tray: steel, white enamelled finish
Toggles: polycarbonate

Installation/Mounting

Cable entry positions at the back and each end of the fitting. Supplied with IP65 grommet. Stainless steel quick-fix brackets supplied with each luminaire. Toggles are captive in the canopy to prevent loss during maintenance. Steel gear tray is retained and suspended by spring latches. conduit mounting, chain suspension and catenary suspension kits are all available as accessories. Through wiring end to end is not possible but looping in and out at one end is acceptable. Suitable for all indoor plus external 'under cover only' applications.

Specification

To specify state: High performance LED IP65, dust and moisture proof luminaire with polycarbonate canopy, diffuser and toggles, Removable LED engine offering 4200 lumens, Ra80, 4000K and DALI dimming, long service life of 50,000 hours, unique dual optic provides wide angle light distribution and uniform visual lit appearance. As Thorn Aquaforce II LED.

Voyager E LED NEW

www.thornlighting.com/**VOEL**





An LED based, IP65 rated, emergency luminaire range comprising two models, a bulkhead and exit sign, both offering low maintenance

- Suitable for escape route and anti-panic (open area) lighting applications
- Long life LED solution
- 3 hour maintained and non maintained LED bulkhead
- 3 hour maintain exit sign features an integrated door illumination panel
- Bulkhead of durable polycarbonate construction
- Bulkheads supplied with a set of adhesive ISO legend kit and exit sign supplied with down arrow ISO legend

Applications

- Corridor/staircases
- Kitchen
- Meeting rooms
- Offices
- Lecture Theatre
- Warehouse/Storage
- Loading bay
- Utility areas
- Toilets
- Open areas

Emergency legends





Spacing data

2m escape route

Mimimum illuminance (lux)	Mounting height (m)	Maximum Spacing (m)			
		Centre to End		Between Centres	
		Trans	Axial	Trans	Axial
1.0	2.5	2.50	2.40	6.85	6.55
	3	2.45	2.30	7.05	6.75

Open area

Mimimum illuminance (lux)	Mounting height (m)	Maximum Spacing (m)			
		Centre to End		Between Centres	
		Trans	Axial	Trans	Axial
0.5	2.5	2.40	2.40	7.75	7.65
	3	2.50	2.45	8.25	8.20
	3.5	2.50	2.50	8.65	8.65

Light source - LED
DLOR - 0.99 LOR - 100

Standards

CE EN 60598 IP65 850°C IP20

Lamps

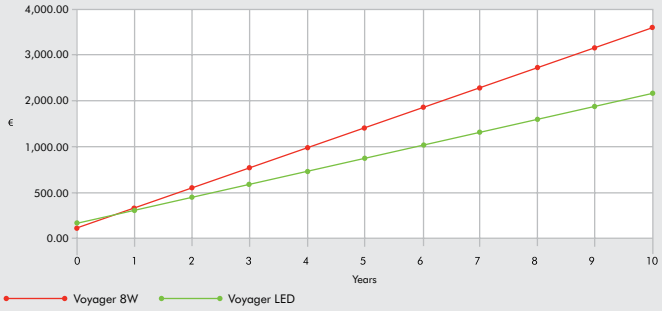




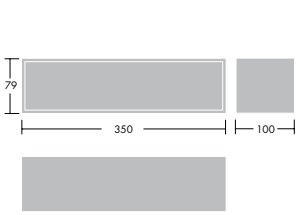
Case Study for comparing a LED emergency bulkhead Vs a 8W T16 emergency bulkhead

The application is a new installation, a 30 metre corridor in an industrial location. Due to the improved spacing for the LED bulkhead then only four fittings are required compared to seven for the 8W versions. As there is a reduction in the number of fittings that require regularly test and inspection then over the first year there is a small saving when selecting LED over 8W T16 if this was over a 10 year period, there would be a saving of over €1300.

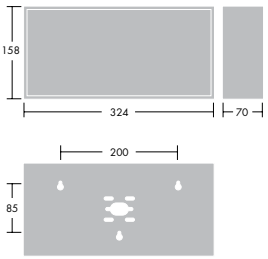
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
LED	€255.49	€447.09	€638.69	€830.29	€1,059.83	€1,251.43	€1,443.03	€1,634.63	€1,826.23	€2,017.83
8W	€296.18	€631.48	€996.78	€1,302.08	€1,687.30	€2,022.60	€2,357.90	€2,693.20	€3,028.50	€3,363.80
Savings	€40.70	€184.40	€328.10	€471.80	€627.47	€771.17	€914.87	€1,058.57	€1,202.27	€1,345.97



Overview



VOYAGER LED BULKHEAD



VOYAGER LED EXIT SIGN

Ordering Guide

Supplied complete with LEDs

Description	Weights (kg)	SAP Code
VOYAGER E LED BULKHEAD E3NM	0.89	96241056
VOYAGER E LED BULKHEAD E3M	0.89	96241057
VOYAGER E LED EXIT SIGN BOX*	1.78	96241058

Legends	SAP Code
VOYAGER LEG EURO UP	96233875
VOYAGER LEG EURO DOWN	96233876
VOYAGER LEG EURO LEFT	96233877
VOYAGER LEG EURO RIGHT	96233878
VOYAGER LEG ISO UP	96236785
VOYAGER LEG ISO DOWN	96236786
VOYAGER LEG ISO LEFT	96236787
VOYAGER LEG ISO RIGHT	96236788

* Voyager Exit Sign Box contains the ISO down legend.

Materials/Finish

Bulkhead
Body: white polycarbonate.
Diffuser: opal polycarbonate.
Gear tray: polycarbonate.

Exit sign
Body/gear tray: white painted steel.
Panel: polycarbonate

Installation/Mounting

Bulkhead
Surface with Ø20mm cable entry each end and rear. Drill points for mounting on recessed ceiling or wall boxes including BESA. 3/4 way terminal block 2x1.5mm² or 1x4mm² capacity.

Exit sign
Wall mounting with Ø20mm cable entry top and rear. Screw fixings (3) on rear. 3/4 way terminal block 2x1.5mm² or 1x4mm² capacity.

Specification

To specify state: Economical self-contained surface IP65 emergency bulkhead for maintained/non-maintained emergency lighting of 3 hour duration, with LED lamp and self adhesive legends.
As Thorn Voyager E Bulkhead LED

To specify state: Economical wall mounted maintained/maintained 3 hour duration emergency exit sign IP20 with LED lamp, door illumination panel, down arrow ISO legend and epoxy coated mild steel construction.
As Thorn Voyager E Exit Sign LED

Satin NEW

www.thornlighting.com/**SATN**





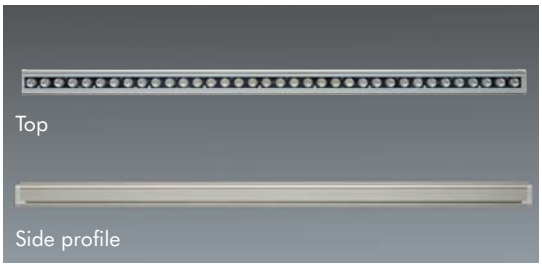
A discreet wall washing linear floodlight offering efficient and effective illumination

- 53 x 52mm small section to be invisible on site
- Choice of light distributions, LED colours and lengths
- Side by side installation for a uniform light beam
- Pre-wired versions for simple installation

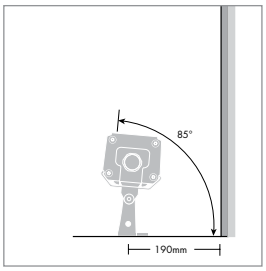
Applications

- Building Surroundings

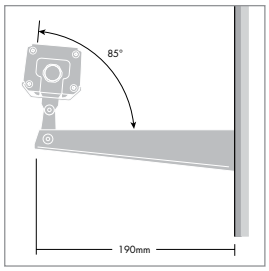
Discreet linear floodlight



Surface mounting options



Floodlight is supplied complete with two compact stirrups for surface mounting on the ground or a buildings ledge



An extension stirrup is available (to be ordered separately) for mounting on to a wall

Photograph: ©Pascal Plessis, Couvent des Ursulines, Communauté des Communes du pays de Château-Gontier (53-Mayenne)

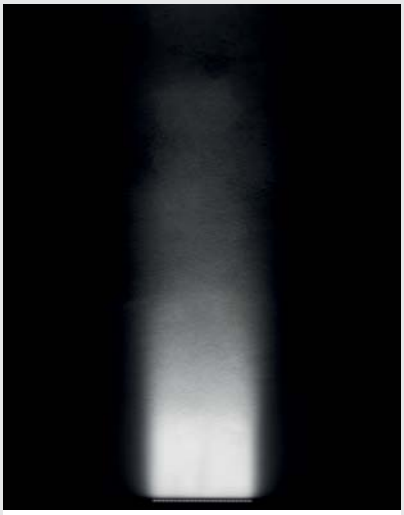
Standards

CE EN 60598 IP67 IK08 T_a25 960°C

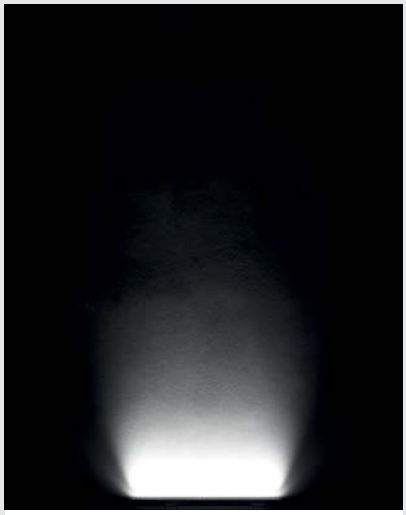
Lamps

From 34 to 68W

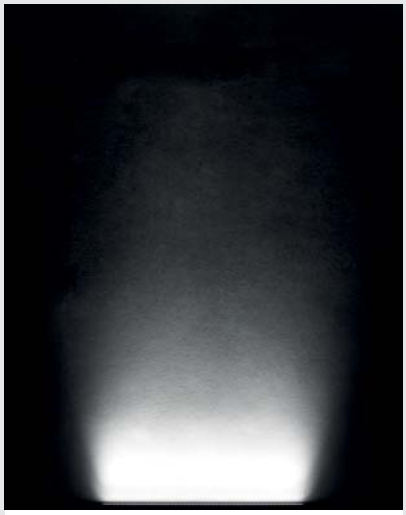
Three light distributions available in 3 lengths



Light distribution 2 x 7°
Length 660mm

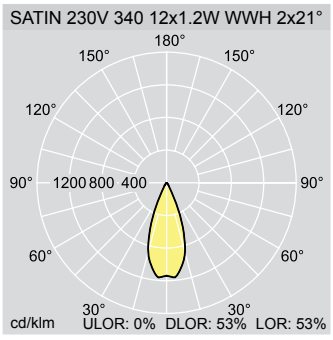


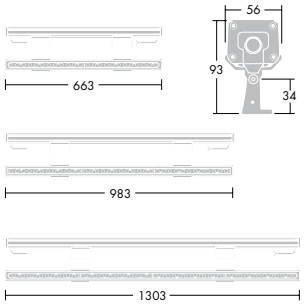
Light distribution 2 x 21°
Length 980mm



Light distribution 20 x 36°
Length 1300mm

Overview





Materials/Finish

Body: painted anodised aluminium
Sides: grey plastic
Glass: UV stabilised PC
Cable: norm H05RNF for power supply connections
Gasket: EPDM
Stirrup: stainless steel 304L

Installation/Mounting

Suitable for surface mounting and recessed mounting when installed in ground recessed boxes. For surface mounting fix the two stirrups on surface with two screws each. Adjust the stirrup angle with the two lateral screws already included.
Other RAL, LED colours and lengths on request.

Specification

To specify state: Discreet high performance linear floodlight for wall washing, with choice of lengths, light distributions and LED colours (neutral white, cold white and blue). As Thorn Satin.

Satin NEW

www.thornlighting.com/**SATN**

Ordering Guide

Two compact stirrups included.
If extension stirrup is required please order separately.
In ground boxes for recessed installation to be ordered separately.
Integral gear tray.

Current In/Out	Length (mm)	Lighting Distribution	Description	Weight (kg)	SAP codes
End of line versions					
IN	660	2x7°	SATIN 34W 660 IN 2X7D BLU	1.5	96260770
			SATIN 34W 660 IN 2X7D 3000K	1.5	96260771
			SATIN 34W 660 IN 2X7D 4500K	1.5	96260772
		2x21°	SATIN 34W 660 IN 2X21D BLU	1.5	96260774
			SATIN 34W 660 IN 2X21D 3000K	1.5	96260775
			SATIN 34W 660 IN 2X21D 4500K	1.5	96260776
		20x36°	SATIN 34W 660 IN 20X36D BLU	1.5	96260778
			SATIN 34W 660 IN 20X36D 3000K	1.5	96260779
			SATIN 34W 660 IN 20X36D 4500K	1.5	96260780
	980	2x7°	SATIN 51W 980 IN 2X7D BLU	2.2	96260782
			SATIN 51W 980 IN 2X7D 3000K	2.2	96260783
			SATIN 51W 980 IN 2X7D 4500K	2.2	96260784
		2x21°	SATIN 51W 980 IN 2X21D BLU	2.2	96260786
			SATIN 51W 980 IN 2X21D 3000K	2.2	96260787
			SATIN 51W 980 IN 2X21D 4500K	2.2	96260788
		20x36°	SATIN 51W 980 IN 20X36D BLU	2.2	96260790
			SATIN 51W 980 IN 20X36D 3000K	2.2	96260791
			SATIN 51W 980 IN 20X36D 4500K	2.2	96260792
	1300	2x7°	SATIN 68W 1300 IN 2X7D BLU	2.7	96260794
			SATIN 68W 1300 IN 2X7D 3000K	2.7	96260795
			SATIN 68W 1300 IN 2X7D 4500K	2.7	96260796
		2x21°	SATIN 68W 1300 IN 2X21D BLU	2.7	96260798
			SATIN 68W 1300 IN 2X21D 3000K	2.7	96260799
			SATIN 68W 1300 IN 2X21D 4500K	2.7	96260800
		20x36°	SATIN 68W 1300 IN 20X36D BLU	2.7	96260802
			SATIN 68W 1300 IN 20X36D 3000K	2.7	96260803
			SATIN 68W 1300 IN 20X36D 4500K	2.7	96260804
Through wiring versions					
IN/OUT	660	2x7°	SATIN 34W 660 IN/OUT 2X7D BLU	1.6	96260823
			SATIN 34W 660 IN/OUT 2X7D 3000K	1.6	96260824
			SATIN 34W 660 IN/OUT 2X7D 4500K	1.6	96260825
		2x21°	SATIN 34W 660 IN/OUT 2X21D BLU	1.6	96260827
			SATIN 34W 660 IN/OUT 2X21D 3000K	1.6	96260828
			SATIN 34W 660 IN/OUT 2X21D 4500K	1.6	96260829
		20x36°	SATIN 34W 660 IN/OUT 20X36D BLU	1.6	96260831
			SATIN 34W 660 IN/OUT 20X36D 3000K	1.6	96260832
			SATIN 34W 660 IN/OUT 20X36D 4500K	1.6	96260833
	980	2x7°	SATIN 51W 980 IN/OUT 2X7D BLU	2.3	96260835
			SATIN 51W 980 IN/OUT 2X7D 3000K	2.3	96260836
			SATIN 51W 980 IN/OUT 2X7D 4500K	2.3	96260837
		2x21°	SATIN 51W 980 IN/OUT 2X21D BLU	2.3	96260839
			SATIN 51W 980 IN/OUT 2X21D 3000K	2.3	96260840
			SATIN 51W 980 IN/OUT 2X21D 4500K	2.3	96260841
		20x36°	SATIN 51W 980 IN/OUT 20X36D BLU	2.3	96260843
			SATIN 51W 980 IN/OUT 20X36D 3000K	2.3	96260844
			SATIN 51W 980 IN/OUT 20X36D 4500K	2.3	96260845
	1300	2x7°	SATIN 68W 1300 IN/OUT 2X7D BLU	2.8	96260847
			SATIN 68W 1300 IN/OUT 2X7D 3000K	2.8	96260848
			SATIN 68W 1300 IN/OUT 2X7D 4500K	2.8	96260849
		2x21°	SATIN 68W 1300 IN/OUT 2X21D BLU	2.8	96260851
			SATIN 68W 1300 IN/OUT 2X21D 3000K	2.8	96260852
			SATIN 68W 1300 IN/OUT 2X21D 4500K	2.8	96260853
		20x36°	SATIN 68W 1300 IN/OUT 20X36D BLU	2.8	96260855
			SATIN 68W 1300 IN/OUT 20X36D 3000K	2.8	96260856
			SATIN 68W 1300 IN/OUT 20X36D 4500K	2.8	96260857

Ordering Guide – Accessories

Description	Weight (kg)	SAP codes
Stirrup		
SATIN COMPACT STIRRUP X2	0.18	96260806
SATIN STIRRUP EXTENSION 202MM X2	0.73	96260807
Ground recessed		
SATIN 660MM FB GL 830X250X160	15	96261248
SATIN 980MM FB GL 1150X250X160	20	96261249
SATIN 1300MM FB GL 1470X250X160	26	96261250

Standards

CE EN 60598 IP67 IK08 T_a25 960°C

Lamps

From 34 to 68W



Photograph: ©Pascal Plessis, Couvent des Ursulines, Communauté des Communes du pays de Château-Gontier (53-Mayenne)

Band² NEW

www.thornlighting.com/**BAN2**





Compact performing linear floodlight for dynamic wall washing

- Supplied complete with power supply and DMX card
- Thermal protection for durability in extreme temperatures (-20°C to +40°C)
- Wide range offering extensive choice of lengths, distributions, colours, as well as IN and IN/OUT versions with customisation options
- Easy to install with two fixation choices on a pre-wired product

Applications

- Façade illumination
- Building Surroundings

2 light distributions



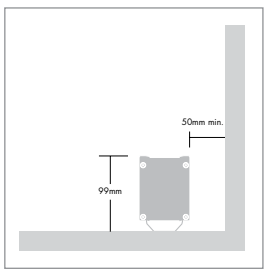
EB - Elliptical beam (10 x 20°)



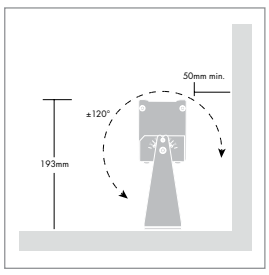
NB - narrow beam (2 x 3°)

Mounting options

Depending on the installation location, compact or long stirrups are available (to be ordered separately).



Fixed compact stirrups for ceiling or floor mounting



Long stirrups for surface mounting

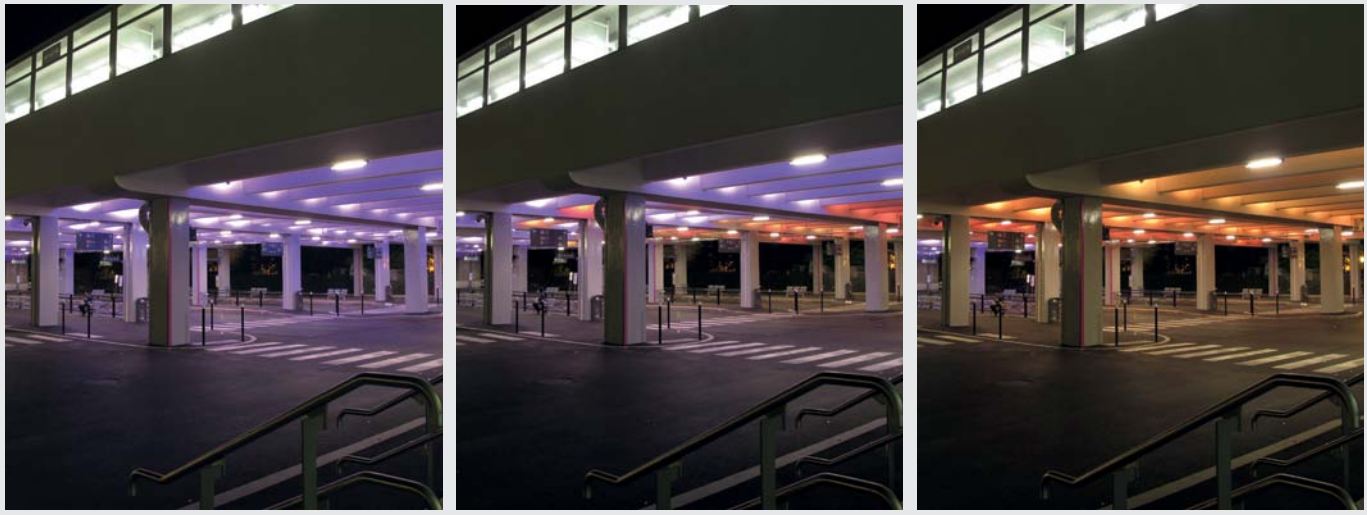
Standards

CE EN 60598 IP65 T_a -20 +40

Lamps

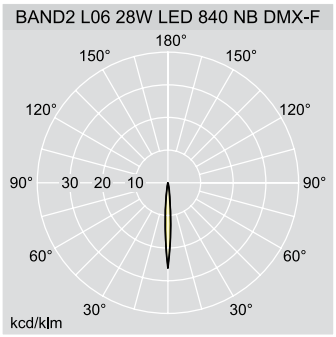
28 - 56W

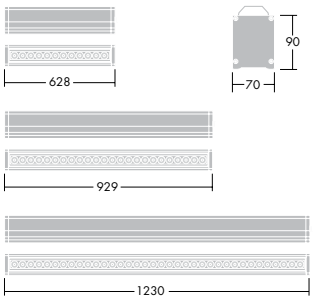
Colour changing effect



Evry Station, France © Agence Luminocité

Overview





Materials/Finish

Front glass: tempered glass, 4mm
Body: anodised aluminium
End caps: painted die-cast aluminium
End cap gasket: silicone seals
Screws: stainless steel

Installation/Mounting

Two mounting choices:
Fixed compact stirrups for ceiling or floor installation: screw the two clip-able stirrups to the surface. Clip the stirrup in the product track.

Long adjustable stirrups for ceiling, floor or wall installation: for stirrup extremity fixation, unscrew the 2 nuts. Place the 2 nuts inside the sliding places below the product. Screw the 2 long stirrups to the product body. Screw the two long stirrups to the surface. Include the washer and complete. Adjust the angle orientation of Band² thanks to the wheels of the long stirrups.

Specification

To specify state: Compact linear floodlight range for dynamic wall washing with choice of two light distributions, three lengths and five LED colours (RGB, RGBA, cold white, neutral white and warm white).
As Thorn Band².

Band² NEW

www.thornlighting.com/**BAN2**

Ordering Guide

Band² is delivered complete (power supply + DMX card) except stirrup fixation which needs to be ordered separately. IN DMX versions to be ordered to finish the product line.
To have a complete order ready to work, you need to order: female XLR5 (96241231) + female Wiedland connector (96241225) +Asto adaptor and addressing tool (96241226 + 96241227)

Current In/Out	Length (mm)	Lighting distribution	Description	Weight (kg)	SAP Code
End of line versions					
IN	628	NB: 2 x 3°	BAND2 L06 28W LED 830 NB DMX-F A IN	3.9	96241181
			BAND2 L06 28W LED 840 NB DMX-F A IN	3.9	96241193
			BAND2 L06 28W LED 856 NB DMX-F A IN	3.9	96241205
		EB: 10 x 20°	BAND2 L06 28W LED RGB EB DMX-F A IN	4.0	96241154
			BAND2 L06 28W LED RGBA EB DMX-F A IN	5.0	96241166
			BAND2 L06 28W LED 830 EB DMX-F A IN	3.9	96241178
			BAND2 L06 28W LED 840 EB DMX-F A IN	3.9	96241190
			BAND2 L06 28W LED 856 EB DMX-F A IN	3.9	96241202
	929	NB: 2 x 3°	BAND2 L09 42W LED 830 NB DMX-F A IN	4.9	96241182
			BAND2 L09 42W LED 840 NB DMX-F A IN	4.9	96241194
			BAND2 L09 42W LED 856 NB DMX-F A IN	4.9	96241206
		EB: 10 x 20°	BAND2 L09 42W LED RGB EB DMX-F A IN	5.1	96241155
			BAND2 L09 42W LED RGBA EB DMX-F A IN	6.0	96241167
			BAND2 L09 42W LED 830 EB DMX-F A IN	4.9	96241179
			BAND2 L09 42W LED 840 EB DMX-F A IN	4.9	96241191
			BAND2 L09 42W LED 856 EB DMX-F A IN	4.9	96241203
	1230	NB: 2 x 3°	BAND2 L12 56W LED 830 NB DMX-F A IN	5.9	96241183
			BAND2 L12 56W LED 840 NB DMX-F A IN	5.9	96241195
			BAND2 L12 56W LED 856 NB DMX-F A IN	5.9	96241207
		EB: 10 x 20°	BAND2 L12 56W LED RGB EB DMX-F A IN	6.1	96241156
			BAND2 L12 56W LED RGBA EB DMX-F A IN	7.0	96241168
			BAND2 L12 56W LED 830 EB DMX-F A IN	5.9	96241180
			BAND2 L12 56W LED 840 EB DMX-F A IN	5.9	96241192
			BAND2 L12 56W LED 856 EB DMX-F A IN	5.9	96241204
Through wiring versions					
IN/OUT	628	NB: 2 x 3°	BAND2 L06 28W LED 830 NB DMX-F A IO	4.1	96241175
			BAND2 L06 28W LED 840 NB DMX-F A IO	4.1	96241187
			BAND2 L06 28W LED 856 NB DMX-F A IO	4.1	96241199
		EB: 10 x 20°	BAND2 L06 28W LED RGB EB DMX-F A IO	4.3	96241137
			BAND2 L06 28W LED RGBA EB DMX-F A IO	5.2	96241160
			BAND2 L06 28W LED 830 EB DMX-F A IO	4.1	96241172
			BAND2 L06 28W LED 840 EB DMX-F A IO	4.1	96241184
			BAND2 L06 28W LED 856 EB DMX-F A IO	4.1	96241196
	929	NB: 2 x 3°	BAND2 L09 42W LED 830 NB DMX-F A IO	5.1	96241176
			BAND2 L09 42W LED 840 NB DMX-F A IO	5.1	96241188
			BAND2 L09 42W LED 856 NB DMX-F A IO	5.1	96241200
		EB: 10 x 20°	BAND2 L09 42W LED RGB EB DMX-F A IO	5.3	96241138
			BAND2 L09 42W LED RGBA EB DMX-F A IO	6.2	96241161
			BAND2 L09 42W LED 830 EB DMX-F A IO	5.1	96241173
			BAND2 L09 42W LED 840 EB DMX-F A IO	5.1	96241185
			BAND2 L09 42W LED 856 EB DMX-F A IO	5.1	96241197
	1230	NB: 2 x 3°	BAND2 L12 56W LED 830 NB DMX-F A IO	6.1	96241177
			BAND2 L12 56W LED 840 NB DMX-F A IO	6.1	96241189
			BAND2 L12 56W LED 856 NB DMX-F A IO	6.1	96241201
		EB: 10 x 20°	BAND2 L12 56W LED RGB EB DMX-F A IO	6.3	96241139
			BAND2 L12 56W LED RGBA EB DMX-F A IO	7.2	96241162
			BAND2 L12 56W LED 830 EB DMX-F A IO	6.1	96241174
			BAND2 L12 56W LED 840 EB DMX-F A IO	6.1	96241186
			BAND2 L12 56W LED 856 EB DMX-F A IO	6.1	96241198

Ordering Guide – Accessories

Description	Wt (kg)	SAP codes
Stirrup		
BAND2 WIEL FEMALE CONNECT 3POL IP66	0.2	96241225
BAND2 ASTO/SPLITTER ADAPTER RJ45M XLRF	0.1	96241226
BAND2 ASTO ADDRESSING TOOL DMX VC USB	0.3	96241227
BAND2 LONG STIRRUP X2	1.0	96241228
BAND2 WIEL MALE/FEMALE CONNECT 3POL IP66	0.0	96241229
BAND2 XLR FEMALE CONNECT 5POL DMX IP65	0.1	96241231
BAND2 XLR MAL/FEMA CONNECT 5POL DMX IP65	0.1	96241232
BAND2 COMPACT STIRRUP X2	0.2	96241233

EB	Ellipsoidal beam	830	CRI 80 + 3000K
NB	Narrow beam	WIEL	Wieland connector
IO	IN/OUT DMX & main current connections	FEMA	Female
		MAL	Male
IN	IN DMX & main current connections	XLRF	XLR connector with female plug
DMX-F	Full DMX	CONNECT	Connector

Standards

CE EN 60598 IP65 T_a -20 +40

Lamps

28 - 56W



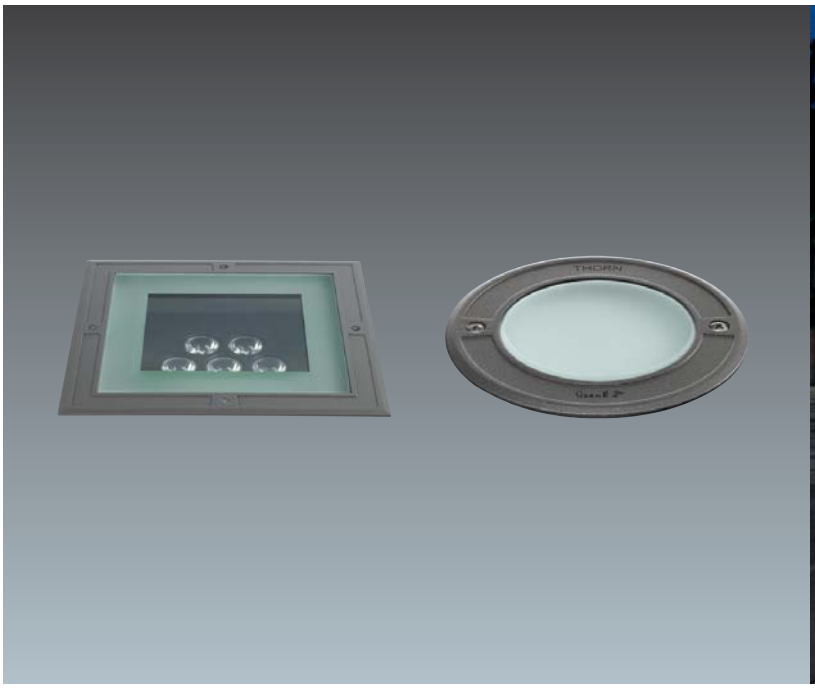




Evry Station, France © Agence Luminocité

E/Fact LED NEW

www.thornlighting.com/**EFCT**





A series of square or circular recessed walk-over LED luminaires compliant with EN60598-2-13: limited surface temperatures

- Designed in accordance with the new contact temperature norm: <40°C for LED versions.
- Sealed to IP67 with die-cast aluminium body. Wide choice of sizes, frames, mounting depths, accessories and control technologies to suit application. Illumination thanks to tilting angle adjustments for semi-frosted glass versions
- Features holographic film technology to shape the LED light beam, thus producing a variety of effects
- DMX controls available for dynamic colour changing effects

Applications

- Pathways
- Outdoor Stairs
- Building Surroundings

E/Fact differentation

E/Fact walk-over recessed luminaires are defined by their distinctive and individual application, technical and design characteristics. The units offer the designer effective and efficient lighting, with the advantage of concealed equipment and public safety. They can be used to illuminate building façades, sculpture and foliage or to provide route guidance. Internal adjustments and asymmetric beams offer offset (angled) light direction. Frosted glass, dome, windows and attachments can give a screened appearance to limit awarness of the light source.

		E/FACT				
Application		Walk over				
Types		E/FACT			E/FACT SLIM	
Sizes		0	1	2	00	3
IP		67				
IK		09	09	09	08	09
LED	Nb LED	1or 3	4	7 or 4x3	1	16
	Colour	Mono	Mono & RGB	Mono & RGB	Mono	Mono
Pre-wired		No			Yes	
Static load		1000kg				
Driving speed		Not suitable				
Norm temperatures		LED < 40°C				
Shapes		Round & square				
Frame		Stainless steel & grey painted aluminium *				
Enclosure		Frosted glass				
		Semi frosted glass				
		Windows 1, 2 or 4 for E/Fact R0				
Product constitution		One code for Body/Power supply/Recessed box ** + Frame/Glass				

* Except E/Fact Slim 1, 2 and 3 with stainless steel frame
** Except E/Fact1 RGB which needs an external DMX/gear box. To be ordered separately

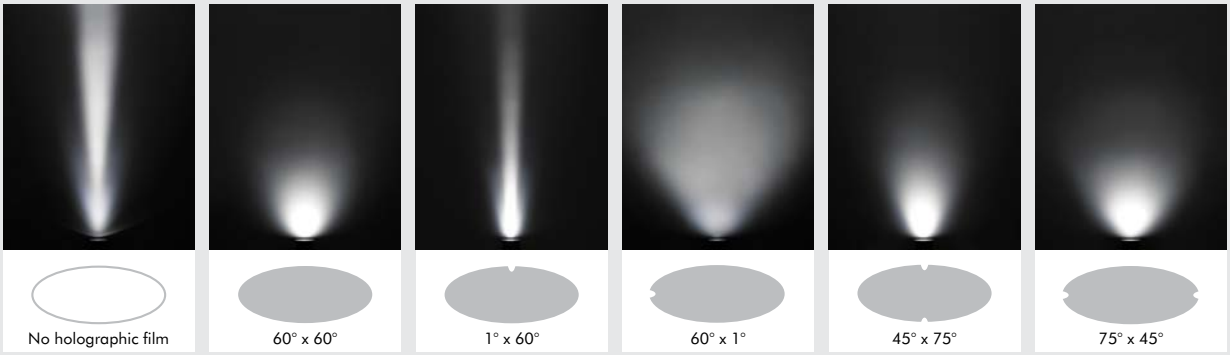
Standards

CE | EN 60598 -2-13 | IP55 | IP56 | IP67 | IK08 | IK09 | 750°C | T_a -20 +25

Lamps

1.2-19.2W

Adding holographic films provides amazing light distribution transformations

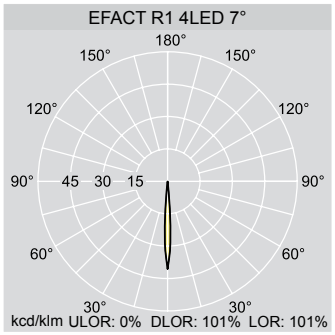


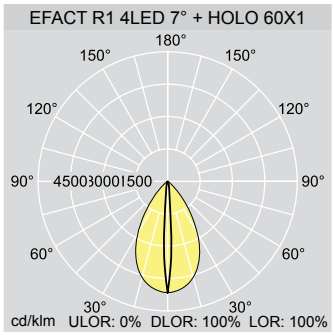
No holographic film | 60° x 60° | 1° x 60° | 60° x 1° | 45° x 75° | 75° x 45°

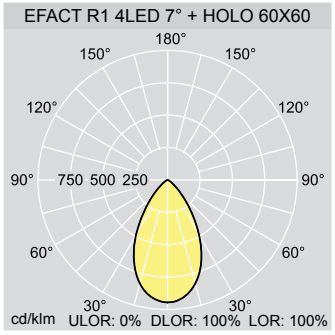
Light beam angle opening by adding holographic films

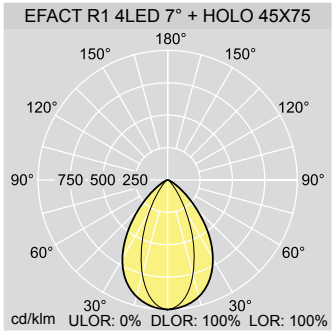
	Holographic films		
Lens	60° x 60°	60° x 1°	75° x 45°
Intensive (2x3.5° or 2x5°)	60° x 60°	62° x 10°	77° x 47°
Wide (2x12°)	72° x 72°	70° x 23°	86° x 56°

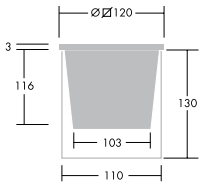
Overview



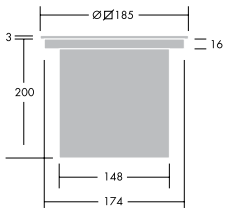




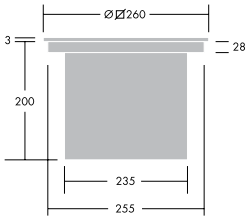




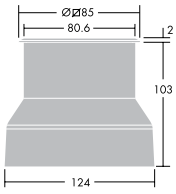
EFact 0



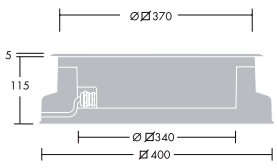
EFact 1



EFact 2



EFact Slim 00



EFact Slim 3

E/Fact LED NEW

www.thornlighting.com/**EFCT**

Materials/Finish

Bodies: die-cast aluminium, ENAB44100 (copper free) with powdered paint finish for high corrosion resistance.
Frame: stainless steel AISI 316L (3mm thick) treated against corrosion or painted aluminium.
Retaining screws: stainless steel.
Front glass: toughened semi-frosted or frosted sodic glass.
Glass thicknesses:
E/Fact 0: 8mm | E/Fact 1: 10mm | E/Fact 2: 12mm.
E/Fact Slim 00: 8mm | E/Fact Slim 3: 15mm.
Gasket: anti-ageing silicon
Recessing box: polypropylene.

Cable for Slim versions: H07RN-F, 1m for size 00 and 0.5m for E/Fact Slim size 3.
Dome window attachments: painted aluminium and polycarbonate dome only for round E/Fact size 0.
Prismatic dome: toughened glass only for round E/Fact size 0 with aluminium frame.
Anti-slip glass on request.
All LED versions have integral power supply (except E/Fact1 RGB with remote DMX/gear box).
All LED versions have electronic ballast.
Holographic films: non-yellowing polycarbonate

Specification

To specify state:
Square and round recessed, low temperatures, LED walk-over luminaires with integral transformer (except E/Fact1 RGB). 5 sizes, 3 standard and 2 pre-wired shallow versions.
Polypropylene recessed box and flat stainless steel/flat or dome windows painted aluminium frames. Die-cast aluminium body sealed to IP67.
LED versions. With a choice of 3 monochromatic colours for size 0, 1, 2 and Slim size 00 and 3.
Dynamic RGB versions for size1 (remote DMX driver for 2 or from 5 to 10 recessed) and size2 (integral DMX driver). Other DMX components ordered separately.
For ground installation with front semi-frosted flat glass enclosure for illumination or frosted glass/dome/dome windows for guidance. Holographic films for LED versions only.
As Thorn E/Fact and E/Fact Slim LED.

Installation/Mounting

In-ground installation: Luminaire delivered complete with body, recessed box, frame and glass (except E/Fact1 RGB which needs to completed by a remote DMX/gear box).

For the Slim versions, the product is pre-wired.

For outdoor applications, 30cm drainage gravel or any equivalent drainage system must be used beneath the housing to ensure water evacuation. The recessed box can be embedded in asphalt with good drainage once the temperature of the asphalt is approximately 80°C.

Luminaire must be operated for 45 minutes without its front glass to avoid moisture building-up inside the housing.

In accordance to the norm EN60598-2-13, the maximum static load is 1000kg.

Glow wire is 750°C.

Ceiling or wall installation: Due to clips and safety cable accessories (to be ordered separately), all E/Fact versions can be installed in ceiling. Only E/Fact 0 and E/Fact Slim size 00 can be used in wall.

LED colour change RGB lighting technology available for Efact1 with a remote gear box and integral in Efact2.

For RGB versions, LEDs are driven by DMX control (not supplied).

To facilitate quick installation, the wiring can be done via IP67 wiring connectors (SAP codes 96260810 or 96260809). For through wiring, IP67 connection boxes can be used (SAP codes 60800549, 96257908 or 96257909).

Holographic film set up in LED versions only: open the front glass and insert the holographic film under the glass thanks to the gasket with the smooth side of the film in contact of the glass. Rotate the film to obtain the required light effect.

Power range E/Fact

The range is summarised in the table showing all the possible light sources by E/Fact size and type, the light distribution and the adjustable angle for the illumination versions.

Product name	Power	Light source type	Glass	Application	Angle opening	Tilting angle	Colour
EFACT 0	3x1,2W	LED	Semi-frosted	Illumination	2x5°	+/-22°	WHITE 3000K, WHITE 6000K, BLUE
					2x12°	+/-22°	
	1x2W		Frosted	Guidance	2x45°	_	
			Dome		2x35°	_	
			Windows		_	_	
EFACT 1	4x2W	LED	Semi-frosted	Illumination	2x3,5° mono	+/-15°	WHITE 3000K, WHITE 6000K, BLUE & RGB
					2x12° mono	+/-15°	
					2x12° for RGB	+/-15°	
			Frosted	Guidance	2x38°	_	
EFACT 2	7x2W	LED	Semi-frosted	Illumination	2x3,5° mono	+/-15°	WHITE 3000K, WHITE 6000K, BLUE & RGB
					2x12° mono	+/-15°	
					2x12° for RGB	+/-15°	
			Frosted	Guidance	2x45°	_	
EFACT 00 SLIM	1x1,2W	LED	Semi-frosted	Illumination	2x3,5°	+/-10°	WHITE 3000K, WHITE 6000K, BLUE
					2x12°	+/-10°	
			Frosted	Guidance	2x46°	_	
EFACT 3 SLIM	16x1,2w	LED	Semi-frosted	Illumination	2x3,5°	+/-10°	WHITE 3000K, WHITE 6000K, BLUE
					2x12°	+/-10°	

Standards

CE EN 60598 -2-13 IP55 IP56 IP67 IK08 IK09 750°C T_a -20 +25

Lamps

1.2-19.2W



E/Fact LED NEW

www.thornlighting.com/**EFCT**

Ordering Guide

All LED E/Fact versions are supplied with LEDs. E/Fact Slim versions are supplied pre-wired. The E/Fact Slim 00 is available with stainless steel or painted aluminium frame. The E/Fact Slim 3 is offered with stainless steel only. E/Fact 1 RGB version works with a remote DMX/gear box (see separate ordering guide).

Description	Weight (kg)	SAP Code
E/FACT 0 - Square		
EFACT C0 1X2W LED B AL FR	1.4	96107557
EFACT C0 1X2W LED B RS FR	1.5	96107556
EFACT C0 1X2W LED W 3K AL FR	1.4	96107544
EFACT C0 1X2W LED W 3K RS FR	1.5	96107543
EFACT C0 1X2W LED W 6K AL FR	1.4	96107555
EFACT C0 1X2W LED W 6K RS FR	1.5	96107554
EFACT C0 3X1,2W LED W 3K 10D AL SF	1.5	96107551
EFACT C0 3X1,2W LED W 3K 10D RS SF	1.5	96107552
EFACT C0 3X1,2W LED W 6K 10D AL SF	1.5	96107946
EFACT C0 3X1,2W LED W 6K 10D RS SF	1.5	96107947
EFACT C0 3X1,2W LED B 10D AL SF	1.5	96107948
EFACT C0 3X1,2W LED B 10D RS SF	1.5	96107949
EFACT C0 3X1,2W LED W 6K 24D AL SF	1.5	96260335
EFACT C0 3X1,2W LED W 6K 24D RS SF	1.5	96260336
EFACT C0 3X1,2W LED W 3K 24D AL SF	1.5	96260337
EFACT C0 3X1,2W LED W 3K 24D RS SF	1.5	96260338
EFACT C0 3X1,2W LED B 24D AL SF	1.5	96260339
EFACT C0 3X1,2W LED B 24D RS SF	1.5	96260340
E/FACT 0 - Round		
EFACT R0 1x1,2W LED B AL EDO/W1	1.4	96107511
EFACT R0 1x1,2W LED B AL EDO/W2	1.4	96107512
EFACT R0 1x1,2W LED B AL EDO/W4	1.3	96107513
EFACT R0 1x1,2W LED W 3K AL EDO/W1	1.4	96107514
EFACT R0 1x1,2W LED W 3K AL EDO/W2	1.4	96107515
EFACT R0 1x1,2W LED W 3K AL EDO/W4	1.3	96107516
EFACT R0 1x1,2W LED W 6K AL EDO/W1	1.4	96107524
EFACT R0 1x1,2W LED W 6K AL EDO/W2	1.4	96107522
EFACT R0 1x1,2W LED W 6K AL EDO/W4	1.3	96107523
EFACT R0 1X2W LED B AL EDO	1.3	96107539
EFACT R0 1X2W LED B AL FR	1.3	96107538
EFACT R0 1X2W LED B RS FR	1.4	96107540
EFACT R0 1X2W LED W 3K AL EDO	1.3	96107531
EFACT R0 1X2W LED W 3K AL FR	1.3	96107530
EFACT R0 1X2W LED W 3K RS FR	1.4	96107532
EFACT R0 1X2W LED W 6K AL EDO	1.3	96107527
EFACT R0 1X2W LED W 6K AL FR	1.3	96107526
EFACT R0 1X2W LED W 6K RS FR	1.4	96107528
EFACT R0 3X1,2W 10D LED W 3K AL SF	1.3	96107548
EFACT R0 3X1,2W 10D LED W 3K RS SF	1.4	96107549
EFACT R0 3X1,2W 10D LED W 6K AL SF	1.3	96107950
EFACT R0 3X1,2W 10D LED W 6K RS SF	1.4	96107951
EFACT R0 3X1,2W 10D LED B AL SF	1.3	96107952
EFACT R0 3X1,2W 10D LED B RS SF	1.4	96107953
EFACT R0 3X1,2W LED W 3K 24D AL SF	1.3	96260329
EFACT R0 3X1,2W LED W 3K 24D RS SF	1.4	96260330
EFACT R0 3X1,2W LED W 6K 24D AL SF	1.3	96260331
EFACT R0 3X1,2W LED W 6K 24D RS SF	1.4	96260332
EFACT R0 3X1,2W LED B 24D AL SF	1.3	96260333
EFACT R0 3X1,2W LED B 24D RS SF	1.4	96260334
E/FACT 1 - Square		
EFACT C1 4X2W ACC 7D LED B AL SF	2.4	96107686
EFACT C1 4X2W ACC 7D LED B RS SF	2.6	96107687
EFACT C1 4X2W ACC 7D LED W 3K AL SF	2.4	96107688
EFACT C1 4X2W ACC 7D LED W 3K RS SF	2.6	96107689
EFACT C1 4X2W ACC 7D LED W 6K AL SF	2.4	96107690
EFACT C1 4X2W ACC 7D LED W 6K RS SF	2.6	96107691
EFACT C1 4X2W SOFT LED B AL FR	2.4	96107694
EFACT C1 4X2W SOFT LED B RS FR	2.6	96107695
EFACT C1 4X2W SOFT LED W 3K AL FR	2.4	96107698
EFACT C1 4X2W SOFT LED W 3K RS FR	2.6	96107699
EFACT C1 4X2W SOFT LED W 6K AL FR	2.4	96107700
EFACT C1 4X2W SOFT LED W 6K RS FR	2.6	96107701
EFACT C1 4X2W ACC LED B 24D AL SF	2.4	96260347
EFACT C1 4X2W ACC LED B 24D RS SF	2.6	96260348
EFACT C1 4X2W ACC LED W 3K 24D AL SF	2.4	96260349
EFACT C1 4X2W ACC LED W 3K 24D RS SF	2.6	96260350
EFACT C1 4X2W ACC LED W 6K 24D AL SF	2.4	96260351
EFACT C1 4X2W ACC LED W 6K 24D RS SF	2.6	96260352

Description	Weight (kg)	SAP Code
E/FACT 1 - Round		
EFACT R1 4X2W ACC 7D LED B AL SF	2.0	96107659
EFACT R1 4X2W ACC 7D LED B RS SF	2.1	96107660
EFACT R1 4X2W ACC 7D LED W 3K AL SF	2.0	96107661
EFACT R1 4X2W ACC 7D LED W 3K RS SF	2.1	96107662
EFACT R1 4X2W ACC 7D LED W 6K AL SF	2.0	96107663
EFACT R1 4X2W ACC 7D LED W 6K RS SF	2.1	96107664
EFACT R1 4X2W SOFT LED B AL FR	2.0	96107667
EFACT R1 4X2W SOFT LED B RS FR	2.1	96107668
EFACT R1 4X2W SOFT LED W 3K AL FR	2.0	96107671
EFACT R1 4X2W SOFT LED W 3K RS FR	2.1	96107672
EFACT R1 4X2W SOFT LED W 6K AL FR	2.0	96107673
EFACT R1 4X2W SOFT LED W 6K RS FR	2.1	96107674
EFACT R1 4X2W ACC LED B 24D AL SF	2.0	96260341
EFACT R1 4X2W ACC LED B 24D RS SF	2.1	96260342
EFACT R1 4X2W ACC LED W 3K 24D AL SF	2.0	96260343
EFACT R1 4X2W ACC LED W 3K 24D RS SF	2.1	96260344
EFACT R1 4X2W ACC LED W 6K 24D AL SF	2.0	96260345
EFACT R1 4X2W ACC LED W 6K 24D RS SF	2.1	96260346
E/FACT 2 - Square		
EFACT C2 4X3X1,2W SOFT LED RGB DMX AL FR	4.3	96107762
EFACT C2 4X3X1,2W SOFT LED RGB DMX RS FR	4.6	96107763
EFACT C2 7X2W ACC 7D LED B AL SF	4.2	96107770
EFACT C2 7X2W ACC 7D LED B RS SF	4.5	96107771
EFACT C2 7X2W ACC 7D LED W 3K AL SF	4.2	96107772
EFACT C2 7X2W ACC 7D LED W 3K RS SF	4.5	96107773
EFACT C2 7X2W ACC 7D LED W 6K AL SF	4.2	96107774
EFACT C2 7X2W ACC 7D LED W 6K RS SF	4.5	96107775
EFACT C2 7X2W SOFT LED B AL FR	4.2	96107776
EFACT C2 7X2W SOFT LED B RS FR	4.5	96107777
EFACT C2 7X2W SOFT LED W 3K AL FR	4.2	96107778
EFACT C2 7X2W SOFT LED W 3K RS FR	4.5	96107779
EFACT C2 7X2W SOFT LED W 6K AL FR	4.2	96107780
EFACT C2 7X2W SOFT LED W 6K RS FR	4.5	96107781
EFACT C2 7X2W ACC LED RGB DMX AL SF	4.3	96107782
EFACT C2 7X2W ACC LED RGB DMX RS SF	4.6	96107783
EFACT C2 7X2W ACC LED B 24D AL SF	4.2	96260359
EFACT C2 7X2W ACC LED B 24D RS SF	4.5	96260360
EFACT C2 7X2W ACC LED W 3K 24D AL SF	4.2	96260361
EFACT C2 7X2W ACC LED W 3K 24D RS SF	4.5	96260362
EFACT C2 7X2W ACC LED W 6K 24D AL SF	4.2	96260363
EFACT C2 7X2W ACC LED W 6K 24D RS SF	4.5	96260364
E/FACT 2 - Round		
EFACT R2 4X3X1,2W SOFT LED RGB DMX AL FR	3.8	96107719
EFACT R2 4X3X1,2W SOFT LED RGB DMX RS FR	4.0	96107720
EFACT R2 7X2W ACC 7D LED B AL SF	3.7	96107727
EFACT R2 7X2W ACC 7D LED B RS SF	3.9	96107728
EFACT R2 7X2W ACC 7D LED W 3K AL SF	3.7	96107729
EFACT R2 7X2W ACC 7D LED W 3K RS SF	3.9	96107730
EFACT R2 7X2W ACC 7D LED W 6K AL SF	3.7	96107731
EFACT R2 7X2W ACC 7D LED W 6K RS SF	3.9	96107732
EFACT R2 7X2W SOFT LED B AL FR	3.7	96107733
EFACT R2 7X2W SOFT LED B RS FR	3.9	96107734
EFACT R2 7X2W SOFT LED W 3K AL FR	3.7	96107735
EFACT R2 7X2W SOFT LED W 3K RS FR	3.9	96107736
EFACT R2 7X2W SOFT LED W 6K AL FR	3.7	96107737
EFACT R2 7X2W SOFT LED W 6K RS FR	3.9	96107738
EFACT R2 7X2W ACC LED RGB DMX AL SF	3.8	96107739
EFACT R2 7X2W ACC LED RGB DMX RS SF	4.0	96107740
EFACT R2 7X2W ACC LED B 24D AL SF	3.7	96260353
EFACT R2 7X2W ACC LED B 24D RS SF	3.9	96260354
EFACT R2 7X2W ACC LED W 3K 24D AL SF	3.7	96260355
EFACT R2 7X2W ACC LED W 3K 24D RS SF	3.9	96260356
EFACT R2 7X2W ACC LED W 6K 24D AL SF	3.7	96260357
EFACT R2 7X2W ACC LED W 6K 24D RS SF	3.9	96260358

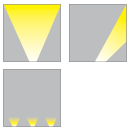
Standards

CE EN 60598 -2-13 IP55

IP56 IP67 IK08 IK09 750°C T_a -20 +25

Lamps

1.2-19.2W



Ordering Guide – E/Fact 1 RGB with remote DMX/gear box

E/Fact 1 RGB with remote gear box to be used with 2 products or from 5 to 10 products.
Order an E/Fact 1 RGB code + the required remote gear
The SAP code 96260652 is for 2 products.
The SAP code 96260651 is from 5 to 10 products.

Description	Weight (kg)	SAP Code
E/FACT Slim 00 - Square		
EFACT C00 SLIM 1X1,2W LED B 7D AL SF	0.6	96107474
EFACT C00 SLIM 1X1,2W LED B 7D RS SF	0.8	96107473
EFACT C00 SLIM 1X1,2W LED B AL FR	0.6	96107502
EFACT C00 SLIM 1X1,2W LED B RS FR	0.7	96107501
EFACT C00 SLIM 1X1,2W LED W 3K 7D AL SF	0.6	96107472
EFACT C00 SLIM 1X1,2W LED W 3K 7D RS SF	0.8	96107471
EFACT C00 SLIM 1X1,2W LED W 3K AL FR	0.6	96107500
EFACT C00 SLIM 1X1,2W LED W 3K RS FR	0.7	96107499
EFACT C00 SLIM 1X1,2W LED W 6K 7D AL SF	0.6	96107470
EFACT C00 SLIM 1X1,2W LED W 6K 7D RS SF	0.8	96107469
EFACT C00 SLIM 1X1,2W LED W 6K AL FR	0.6	96107498
EFACT C00 SLIM 1X1,2W LED W 6K RS FR	0.7	96107497
EFACT C00 SLIM 1X1,2W LED W 6K 24D AL SF	0.6	96260323
EFACT C00 SLIM 1X1,2W LED W 6K 24D RS SF	0.8	96260324
EFACT C00 SLIM 1X1,2W LED W 3K 24D AL SF	0.6	96260325
EFACT C00 SLIM 1X1,2W LED W 3K 24D RS SF	0.8	96260326
EFACT C00 SLIM 1X1,2W LED B 24D AL SF	0.6	96260327
EFACT C00 SLIM 1X1,2W LED B 24D RS SF	0.8	96260328
E/FACT Slim 00 - Round		
EFACT R00 SLIM 1X1,2W LED B 7D AL SF	0.5	96107460
EFACT R00 SLIM 1X1,2W LED B 7D RS SF	0.6	96107459
EFACT R00 SLIM 1X1,2W LED B AL FR	0.5	96107488
EFACT R00 SLIM 1X1,2W LED B RS FR	0.6	96107487
EFACT R00 SLIM 1X1,2W LED W 3K 7D AL SF	0.5	96107458
EFACT R00 SLIM 1X1,2W LED W 3K 7D RS SF	0.6	96107457
EFACT R00 SLIM 1X1,2W LED W 3K AL FR	0.5	96107486
EFACT R00 SLIM 1X1,2W LED W 3K RS FR	0.6	96107485
EFACT R00 SLIM 1X1,2W LED W 6K 7D AL SF	0.5	96107456
EFACT R00 SLIM 1X1,2W LED W 6K 7D RS SF	0.6	96107455
EFACT R00 SLIM 1X1,2W LED W 6K AL FR	0.5	96107484
EFACT R00 SLIM 1X1,2W LED W 6K RS FR	0.6	96107483
EFACT R00 SLIM 1X1,2W LED W 6K 24D AL SF	0.5	96259853
EFACT R00 SLIM 1X1,2W LED W 6K 24D RS SF	0.6	96260318
EFACT R00 SLIM 1X1,2W LED W 3K 24D AL SF	0.5	96260319
EFACT R00 SLIM 1X1,2W LED W 3K 24D RS SF	0.6	96260320
EFACT R00 SLIM 1X1,2W LED B 24D AL SF	0.5	96260321
EFACT R00 SLIM 1X1,2W LED B 24D RS SF	0.6	96260322
E/FACT Slim 3 - Round		
EFACT R3 SLIM 16X1,2W ACC 7D LED B SF	8.9	96107804
EFACT R3 SLIM 16X1,2W ACC 7DLED W 3K SF	8.9	96107803
EFACT R3 SLIM 16X1,2W ACC 7DLED W 6K SF	8.9	96107802
EFACT R3 SLIM 16X1,2W AC 24DLED W 6K ALSF	8.9	96260365
EFACT R3 SLIM 16X1,2W AC 24DLED W 3K ALSF	8.9	96260366
EFACT R3 SLIM 16X1,2W AC 24DLED B AL SF	8.9	96260367
E/FACT Slim 3 - Square		
EFACT C3 SLIM 16X1,2W ACC 7D LED B SF	10.5	96107807
EFACT C3 SLIM 16X1,2W ACC 7DLED W 3K SF	10.5	96107806
EFACT C3 SLIM 16X1,2W ACC 7DLED W 6K SF	10.5	96107805
EFACT C3 SLIM 16X1,2W AC 24DLED W 6K RSSF	10.5	96260368
EFACT C3 SLIM 16X1,2W AC 24DLED W 3K RSSF	10.5	96260369
EFACT C3 SLIM 16X1,2W AC 24DLED B RS SF	10.5	96260370

ACC	accent LED	SOFT	soft LED
W	white	B	blue
6K	6000K	3K	3000K
AL	aluminium	RS	stainless steel
EDO	dome		
SF	semi-frosted	FR	frosted

Description	Weight (kg)	SAP Code
E/FACT 1 RGB - Square		
EFACT C1 4X2W ACC LED RGB AL SF	2.4	96260659
EFACT C1 4X2W ACC LED RGB RS SF	2.6	96260660
EFACT C1 4X2W SOFT LED RGB AL FR	2.4	96260661
EFACT C1 4X2W SOFT LED RGB RS FR	2.5	96260662
E/FACT 1 RGB - Round		
EFACT R1 4X2W ACC LED RGB AL SF	2.1	96260663
EFACT R1 4X2W ACC LED RGB RS SF	2.3	96260664
EFACT R1 4X2W SOFT LED RGB AL FR	2.1	96260665
EFACT R1 4X2W SOFT LED RGB RS FR	2.2	96260666
Remote Gear		
EFACT 1 100W RGB REMOTE DMX SYSTEM	1.7	96260651
EFACT 1 20W RGB REMOTE DMX SYSTEM	0.9	96260652

Ordering Guide – Accessories

Not suitable for conventional versions

Description	Weight (kg)	SAP Code
EFACT SLIM C00 LED HOLO FILM 60X1°	0.1	96260406
EFACT SLIM C00 LED HOLO FILM 60X60°	0.1	96260407
EFACT SLIM C00 LED HOLO FILM 75X45°	0.1	96260408
EFACT SLIM R00 LED HOLO FILM 60X1°	0.1	96260409
EFACT SLIM R00 LED HOLO FILM 60X60°	0.1	96260410
EFACT SLIM R00 LED HOLO FILM 75X45°	0.1	96260411
EFACT C0 LED HOLO FILM 60X1°	0.1	96260412
EFACT C0 LED HOLO FILM 60X60°	0.1	96260413
EFACT C0 LED HOLO FILM 75X45°	0.1	96260414
EFACT R0/MINIPINS LED HOLO FILM 60X1°	0.1	96260415
EFACT R0/MINIPINS LED HOLO FILM 60X60°	0.1	96260416
EFACT R0/MINIPINS LED HOLO FILM 75X45°	0.1	96260417
EFACT C1 LED HOLO FILM 60X1°	0.2	96260418
EFACT C1 LED HOLO FILM 60X60°	0.2	96260419
EFACT C1 LED HOLO FILM 75X45°	0.2	96260420
EFACT R1 LED HOLO FILM 60X1°	0.2	96260421
EFACT R1 LED HOLO FILM 60X60°	0.2	96260422
EFACT R1 LED HOLO FILM 75X45°	0.2	96260423
EFACT C2 LED HOLO FILM 60X1°	0.2	96260424
EFACT C2 LED HOLO FILM 60X60°	0.2	96260425
EFACT C2 LED HOLO FILM 75X45°	0.2	96260426
EFACT R2 LED HOLO FILM 60X1°	0.2	96260427
EFACT R2 LED HOLO FILM 60X60°	0.2	96260428
EFACT R2 LED HOLO FILM 75X45°	0.2	96260429

Mica Slim LED NEW

www.thornlighting.com/**MICA**





A series of circular recessed driveover LED luminaires compliant with EN60598-2-13: limited surface temperatures

- Designed in accordance with the new contact temperature norm: <40°C for LED versions.
- Sealed to IP67 with die-cast aluminium body. Wide choice of sizes, frames, mounting depths, accessories and control technologies to suit application. Illumination thanks to tilting angle adjustments for semi-frosted glass versions
- Features holographic film technology to shape the LED light beam, thus producing a variety of effects.
- DMX controls available for dynamic colour changing effects

Applications

- Carpark
- Pathways
- Outdoor Stairs
- Building Surroundings

Mica differentation

Mica drive-over recessed luminaires are defined by their distinctive and individual application, technical and design characteristics. The units offer the designer effective and efficient lighting, with the advantage of concealed equipment and public safety. They can be used to illuminate building façades, sculpture and foliage or to provide route guidance. Internal adjustments and asymmetric beams offer offset (angled) light direction. Frosted glass, dome windows and attachments can give a screened appearance to limit awarness of the light source.

		MICA			
Application		Drive over			
Types		MICA SLIM			
Sizes		SS	S	A	I
IP		67			
IK		10	10	10	10
LED	Nb LED	1	3	4	7 or 4x3
	Colour	Mono	Mono	Mono & RGB	Mono & RGB
Pre-wired		Yes			
Static load		5000kg for flat glass with stainless steel frame			
		3500kg for flat glass with aluminium frame			
Driving speed		30km/h for the flat versions			
		20km/h for the dome window versions			
Norm temperatures		LED < 40°C			
Shapes		Round			
Frame		Stainless steel & grey painted aluminium			
Enclosure		Frosted glass			
		Semi frosted glass			
		Windows 1, 2 or 8 => Mica Slim SS, S & A			
Product constitution		One code for Body/Power supply/Recessed box * + Frame/Glass			

* Except for Mica Slim A RGB which needs an external DMX/gear box. To be ordered separately

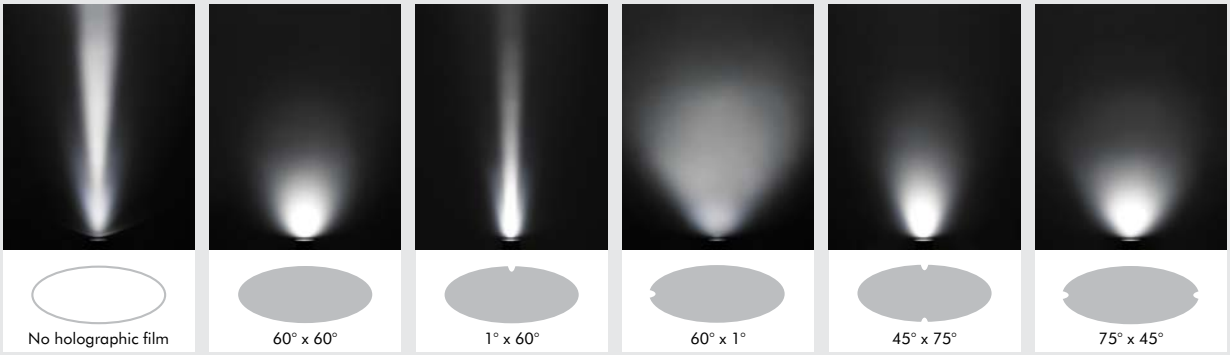
Standards

CE · EN 60598-2-13 · IP55 · IP56 · IP67 · IK10 · 750°C · T_a -20 +25

Lamps

1.2-14.4W

Adding holographic films provides amazing light distribution transformations

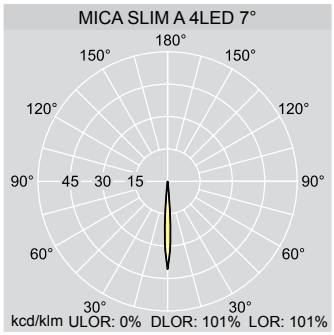


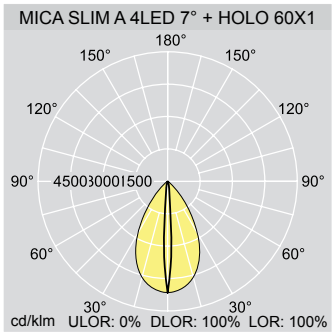
No holographic film | 60° x 60° | 1° x 60° | 60° x 1° | 45° x 75° | 75° x 45°

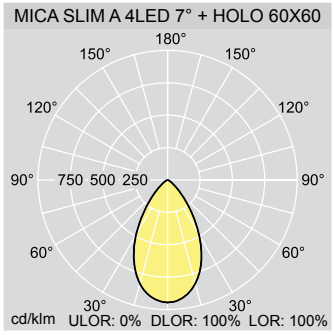
Light beam angle opening by adding holographic films

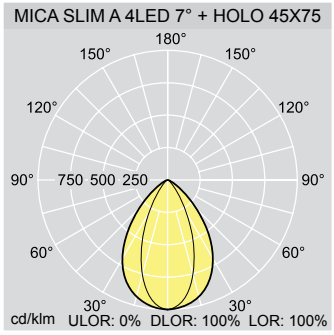
	Holographic films		
Lens	60° x 60°	60° x 1°	75° x 45°
Intensive (2x3.5° or 2x5°)	60° x 60°	62° x 10°	77° x 47°
Wide (2x12°)	72° x 72°	70° x 23°	86° x 56°

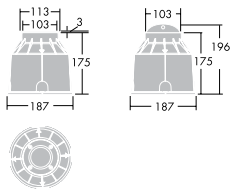
Overview



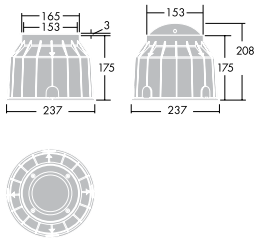




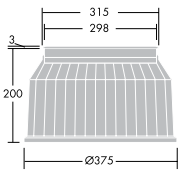




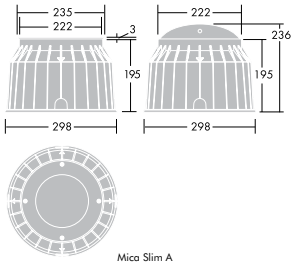
Mica Slim SS



Mica Slim S



Mica Slim I



Mica Slim A

Mica Slim LED NEW

www.thornlighting.com/**MICA**

Materials/Finish

Bodies: die-cast aluminium, ENAB44100 (copper free) with powdered paint finish for high corrosion resistance.
Frame: Stainless steel AISI 316L (3mm thick) treated against corrosion or painted aluminium.
Retaining screws: stainless steel.
Front glass: toughened semi-frosted, clear or frosted sodic glass.
Glass thicknesses: Mica Slim A, Slim I: 19mm with stainless steel frame and 15 with painted aluminium. Mica Slim SS and S: 15mm with stainless steel frame and 12 with painted aluminium frame.
Gasket: anti-ageing silicon.
Recessing box: polypropylene.
Cable: H07RN-F 0.5m long for Mica Slim.
Dome window attachments: painted aluminium.
Anti-slip glass on request.
All LED versions have integral power supply except the Mica Slim A RGB version.
All LED versions have electronic ballast.
Holographic films: non-yellowing polycarbonate.

Specification

To specify state: Round recessed, low temperatures, drive-over luminaires with integral transformer, except for Mica Slim A RGB version, 4 pre-wired shallow versions. Polypropylene recessed box and flat stainless steel/flat or dome windows painted aluminium frames.
Die cast aluminium body sealed to IP67. LED versions with a choice of 3 monochromatic colours for Mica Slim SS, S, A and I.
Dynamic RGB versions for Mica Slim A (remote DMX driver for 2 or from 5 to 10 recessed) and Mica Slim I (Integral DMX driver). Other DMX components ordered separately.
For ground installation with front part-frosted flat glass enclosure for illumination or frosted glass/dome windows for guidance. Holographic films for LED versions only.
As Thorn Mica Slim LED.

Installation/Mounting

Luminaire delivered complete with body, recessed box, frame and glass (except for Mica Slim A RGB which needs an external DMX/gear box. To be ordered separately). All versions are pre-wired.

For outdoor applications, 30cm drainage gravel or any equivalent drainage system must be used beneath the housing to ensure water evacuation. The recessed box can be, embedded in asphalt with good drainage once the temperature of the asphalt is approximately 80°C.

Luminaire must be operated for 45 minutes without its front glass to avoid moisture build-up inside the housing. Mica and Mica Slim can be installed in areas with a maximum low speed of 30km/hr for the flat versions and 20km/hr for the dome versions.

To facilitate quick installation, the wiring can be done via two IP67 wiring connectors (SAP codes 96260810 or 96260809). For through wiring, IP67 connection boxes can be used (SAP codes 60800549, 96257908 or 96257909).

All versions have integral power supply except the Mica Slim A RGB versions.

In accordance to the norm EN60598-2-13, the maximum static load for flat glass is 5000kg with stainless steel frame and 3500kg with aluminium frame. For dome window the maximum static load is 2000kg.

Glow wire is 750°C.

Colour change RGB lighting technology available with Mica Slim A with remote gear box and integral for Mica Slim I for guidance or illumination. For RGB versions, LEDs are driven by DMX control (not supplied).

Holographic film set up in LED versions only: open the front glass and insert the holographic film under the glass thanks to the gasket with the smooth side of the film in contact of the glass. Rotate the film to obtain the required light effect.

Power range Mica

The range is summarised in the table showing all of the possible light sources by Mica Slim size and type, the light distribution and the adjustable angle for the illumination versions.

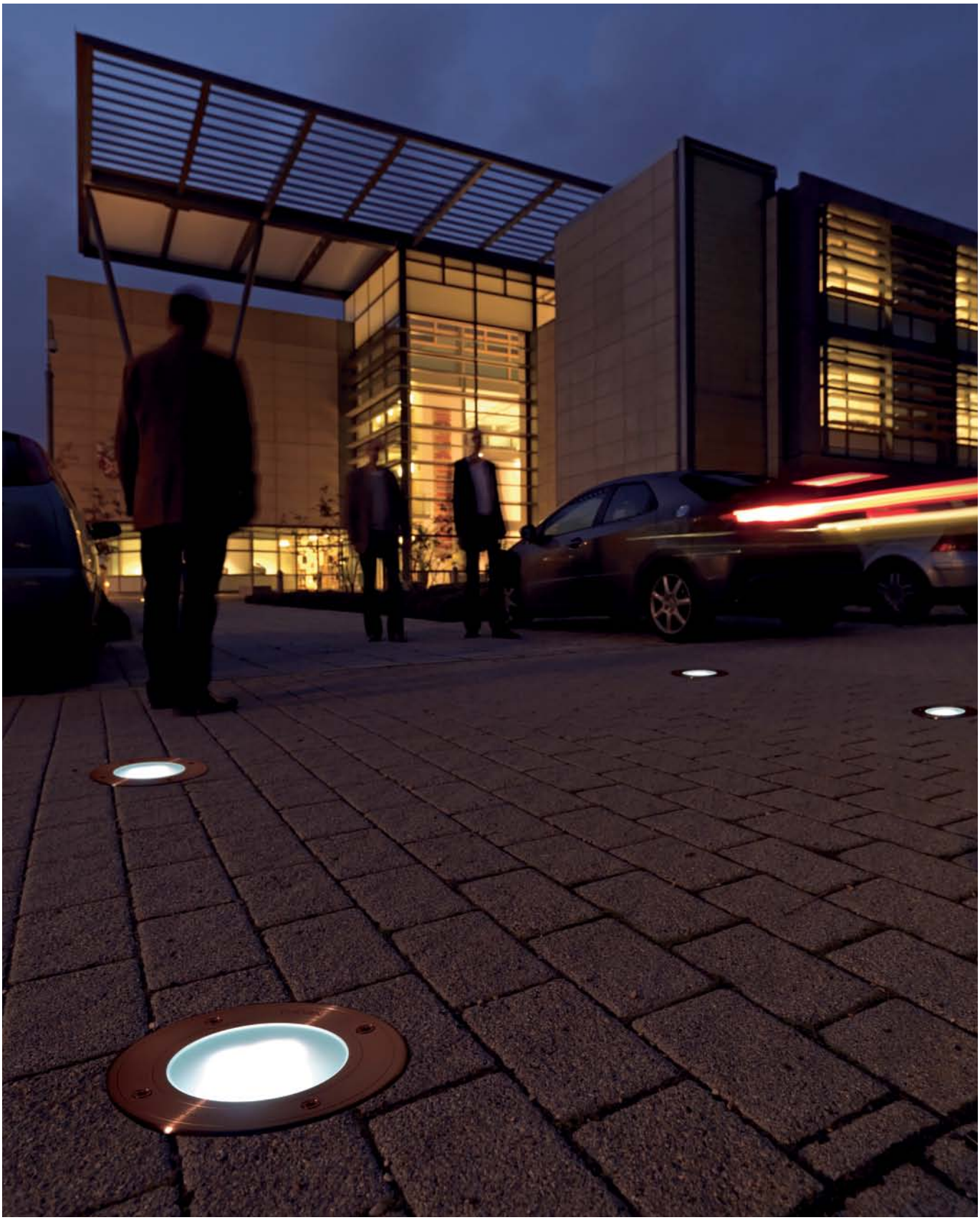
Product name	Power	Light source type	Glass	Application	Angle opening	Tilting angle	Colour
MICA SLIM SS	1x1,2W	LED	Semi-frosted	Illumination	2x3,5°	+/-15°	WHITE 3000K, WHITE 6000K, BLUE
					2x12°	+/-15°	
			Frosted	Guidance	2x46°	_	
			Windows		_	_	
MICA SLIM S	3x1,2W	LED	Semi-frosted	Illumination	2x5°	+/-15°	WHITE 3000K, WHITE 6000K, BLUE
					2x12°	+/-15°	
			Frosted	Guidance	2x35°	_	
MICA SLIM A	4x2W	LED	Frosted	Guidance	2x38°	_	WHITE 3000K, WHITE 6000K, BLUE RGB
			Semi-frosted	Illumination	2x3,5° mono	+/-15°	
					2x12° mono	+/-15°	
					2x12° for RGB	+/-15°	
MICA SLIM I	7x2W	LED Mono	Frosted	Guidance	2x45°	_	WHITE 3000K, WHITE 6000K, BLUE RGB
	4x3X1,2W	LED RGB					
	7x2W	LED	Semi-frosted	Illumination	2x3,5° mono	+/-15°	
					2x12° mono	+/-15°	
					2x12° for RGB	+/-15°	

Standards

CE EN 60598 -2-13 IP55 IP56 IP67 IK10 750°C T_a -20 +25

Lamps

1.2-14.4W



Mica Slim LED NEW

www.thornlighting.com/**MICA**

Ordering Guide

All LED Mica Slim versions are supplied with LEDs.
All LED Mica Slim versions are supplied pre-wired.
Mica Slim A RGB version works with a remote DMX gear box (see separate ordering guide).

Description	Weight (kg)	SAP Code
Mica Slim SS		
MICA SLIM SS 1X1,2W AC 24DLED W 6K AL SF	1.9	96260379
MICA SLIM SS 1X1,2W AC 24DLED W 6K RS SF	2.1	96260380
MICA SLIM SS 1X1,2W AC 24DLED W 3K AL SF	1.9	96260381
MICA SLIM SS 1X1,2W AC 24DLED W 3K RS SF	2.1	96260382
MICA SLIM SS 1X1,2W AC LED BLU 24D AL SF	1.9	96260383
MICA SLIM SS 1X1,2W AC LED BLU 24D RS SF	2.1	96260384
MICA SLIM SS 1,2W SOFT LED WHI 6K RS FR	1.5	96257369
MICA SLIM SS 1,2W SOFT LED WHI 3K RS FR	1.5	96257370
MICA SLIM SS 1,2W SOFT LED BLU RS FR	1.5	96257371
MICA SLIM SS 1,2W SOFT LED WHI 6K AL FR	1.4	96257372
MICA SLIM SS 1,2W SOFT LED WHI 3K AL FR	1.4	96257373
MICA SLIM SS 1,2W SOFT LED BLU AL FR	1.4	96257374
MICA SLIM SS 1,2W ACC 7DLED W 6K RS SF	2.1	96503614
MICA SLIM SS 1,2W ACC 7DLED W 3K RS SF	2.1	96257418
MICA SLIM SS 1,2W ACC 7DLED BLU RS SF	2.1	96503615
MICA SLIM SS 1,2W ACC 7DLED W 6K AL SF	1.9	96257419
MICA SLIM SS 1,2W ACC 7DLED W 3K AL SF	1.9	96257420
MICA SLIM SS 1,2W ACC 7DLED BLU AL SF	1.9	96257421
MICA SLIM SS 1,2W 1LED WHI 6K EDO EW1	1.9	96503619
MICA SLIM SS 1,2W 1LED BLU EDO EW1	1.9	96503620
MICA SLIM SS 1,2W 1LED WHI 6K EDO EW2	1.9	96503624
MICA SLIM SS 1,2W 1LED BLU EDO EW2	1.9	96503625
MICA SLIM SS 1,2W 1LED WHI 6K EDO EW8	1.9	96503629
MICA SLIM SS 1,2W 1LED BLU EDO EW8	1.9	96503630
MICA SLIM SS 1,2W 1LED WHI 3K EDO EW1	1.9	96257422
MICA SLIM SS 1,2W 1LED WHI 3K EDO EW2	1.9	96257423
MICA SLIM SS 1,2W 1LED WHI 3K EDO EW8	1.9	96257424
Mica Slim S		
MICA SLIM S 3X1,2W SOFT LED WHI 6K RS FR	2.4	96257426
MICA SLIM S 3X1,2W SOFT LED WHI 3K RS FR	2.4	96257427
MICA SLIM S 3X1,2W SOFT LED BLU RS FR	2.4	96257428
MICA SLIM S 3X1,2W SOFT LED WHI 6K AL FR	2.1	96257429
MICA SLIM S 3X1,2W SOFT LED WHI 3K AL FR	2.1	96257430
MICA SLIM S 3X1,2W SOFT LED BLU AL FR	2.1	96257431
MICA SLIM S 3X1,2W ACC 10DLED W 6K RS SF	2.6	96503636
MICA SLIM S 3X1,2W ACC 10DLED W 3K RS SF	2.6	96257433
MICA SLIM S 3X1,2W ACC 10DLED BLU RS SF	2.6	96503637
MICA SLIM S 3X1,2W ACC 10DLED W 6K AL SF	2.2	96257434
MICA SLIM S 3X1,2W ACC 10DLED W 3K AL SF	2.2	96257435
MICA SLIM S 3X1,2W ACC 10DLED BLU AL SF	2.2	96257436
MICA SLIM S 3X1,2W ACC 24DLED W 6K AL SF	2.2	96260385
MICA SLIM S 3X1,2W ACC 24DLED W 6K RS SF	2.6	96260386
MICA SLIM S 3X1,2W ACC 24DLED W 3K AL SF	2.2	96260387
MICA SLIM S 3X1,2W ACC 24DLED W 3K RS SF	2.6	96260388
MICA SLIM S 3X1,2W ACC LED BLU 24D AL SF	2.2	96260389
MICA SLIM S 3X1,2W ACC LED BLU 24D RS SF	2.6	96260390

Description	Weight (kg)	SAP Code
Mica Slim A		
MICA SLIM A 4X2W SOFT LED WHI 6K RS FR	5.0	96257441
MICA SLIM A 4X2W SOFT LED WHI 3K RS FR	5.0	96257442
MICA SLIM A 4X2W SOFT LED BLU RS FR	5.0	96257443
MICA SLIM A 4X2W SOFT LED WHI 6K AL FR	4.2	96257444
MICA SLIM A 4X2W SOFT LED WHI 3K AL FR	4.2	96257445
MICA SLIM A 4X2W SOFT LED BLU AL FR	4.2	96257446
MICA SLIM A 4X2W ACC 7D LED W 6K RS SF	5.1	96257454
MICA SLIM A 4X2W ACC 7D LED W 3K RS SF	5.1	96257455
MICA SLIM A 4X2W ACC 7D LED BLU RS SF	5.1	96257456
MICA SLIM A 4X2W ACC 7D LED W 6K AL SF	4.3	96257457
MICA SLIM A 4X2W ACC 7D LED W 3K AL SF	4.3	96257458
MICA SLIM A 4X2W ACC 7D LED BLU AL SF	4.3	96257459
MICA SLIM A 4X2W ACC 24D LED W 6K AL SF	4.3	96260391
MICA SLIM A 4X2W ACC 24D LED W 6K RS SF	5.1	96260392
MICA SLIM A 4X2W ACC 24D LED W 3K AL SF	4.3	96260393
MICA SLIM A 4X2W ACC 24D LED W 3K RS SF	5.1	96260394
MICA SLIM A 4X2W ACC LED BLU 24D AL SF	4.3	96260395
MICA SLIM A 4X2W ACC LED BLU 24D RS SF	5.1	96260396
Mica Slim I		
MICA SLIM I 7x2W ACC 7D LED W 6K AL SF	7.5	96257470
MICA SLIM I 7x2W ACC 7D LED W 6K RS SF	8.8	96257471
MICA SLIM I 7x2W ACC 7D LED W 3K AL SF	7.5	96257472
MICA SLIM I 7x2W ACC 7D LED W 3K RS SF	8.8	96257473
MICA SLIM I 7x2W ACC 7D LED BLU AL SF	7.5	96257474
MICA SLIM I 7x2W ACC 7D LED BLU RS SF	8.8	96257476
MICA SLIM I 7X2W ACC LEDS RGB AL SF	9.0	96260600
MICA SLIM I 7X2W ACC LEDS RGB RS SF	9.0	96260601
MICA SLIM I 7x2W SOFT LED WHI 6K AL FR	7.3	96257478
MICA SLIM I 7x2W SOFT LED WHI 6K RS FR	8.6	96257479
MICA SLIM I 7x2W SOFT LED WHI 3K AL FR	7.3	96257480
MICA SLIM I 7x2W SOFT LED WHI 3K RS FR	8.6	96257481
MICA SLIM I 7x2W SOFT LED BLU AL FR	7.3	96257482
MICA SLIM I 7x2W SOFT LED BLU RS FR	8.6	96257483
MICA SLIM I 4X3X1,2W SOFT LEDS RGB AL FR	9.0	96260602
MICA SLIM I 4X3X1,2W SOFT LEDS RGB RS FR	9.0	96260603
MICA SLIM I 7X2W ACC 24D LED W 6K AL SF	7.5	96260397
MICA SLIM I 7X2W ACC 24D LED W 6K RS SF	8.8	96260398
MICA SLIM I 7X2W ACC 24D LED W 3K AL SF	7.5	96260399
MICA SLIM I 7X2W ACC 24D LED W 3K RS SF	8.8	96260400
MICA SLIM I 7X2W ACC LED BLU 24D AL SF	7.5	96260401
MICA SLIM I 7X2W ACC LED BLU 24D RS SF	8.8	96260402

ACC	accent LED	SOFT	soft LED
WHI	white	BLU	blue
6K	6000K	3K	3000K
AL	aluminium	RS	stainless steel
SF	semi-frosted	FR	frosted

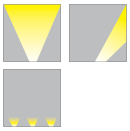
Standards

CE EN 60598 -2-13 IP55

IP56 IP67 IK10 750°C T_a -20 +25

Lamps

1.2-14.4W



Ordering Guide

Mica Slim A RGB with remote gear box to be used with 2 products or from 5 to 10 products.
Order a Mica Slim A RGB code + the required remote gear.
The SAP code 96260633 is for 2 products.
The SAP code 96260632 is from 5 to 10 products.

Description	Weight (kg)	SAP Code
Mica Slim A - RGB		
MICA SLIM A 4X2W SOFT LED RGB RS FR	3.0	96260653
MICA SLIM A 4X2W SOFT LED RGB AL FR	3.0	96260654
MICA SLIM A 4X2W ACC LED RGB RS SF	3.0	96260655
MICA SLIM A 4X2W ACC LED RGB AL SF	3.0	96260656
Remote Gear		
MICA SLIM A 100W RGB REMOTE DMX SYSTEM	1.7	96260632
MICA SLIM A 20W RGB REMOTE DMX SYSTEM	0.9	96260633

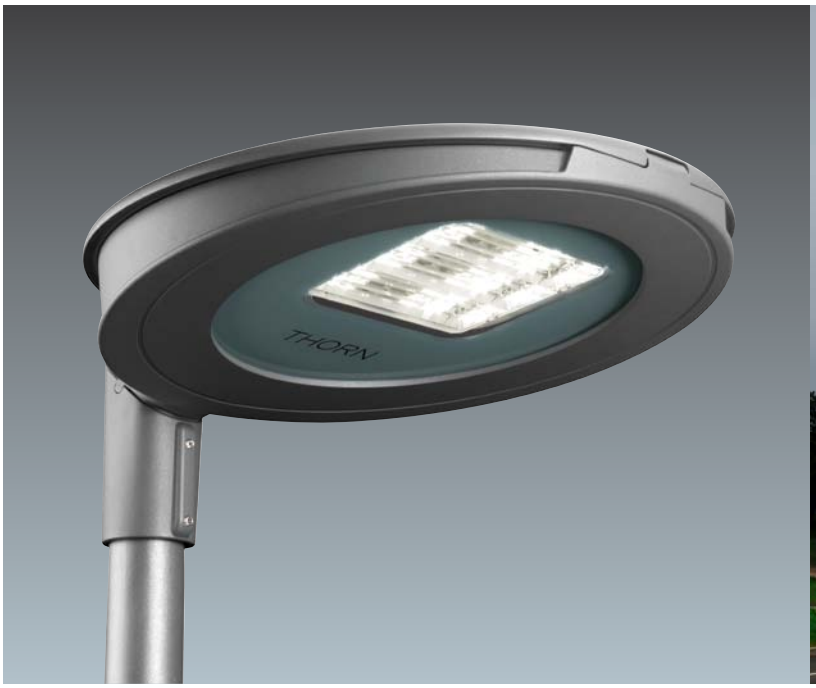
Ordering Guide – Accessories

Not suitable for conventional versions

Description	SAP Code
MICA SLIM SS/CESAR1 LED HOLO FILM 60X1°	96260430
MICA SLIM SS/CESAR1 LED HOLO FILM 60X60°	96260431
MICA SLIM SS/CESAR1 LED HOLO FILM 75X45°	96260432
MICA SLIM S LED HOLO FILM 60X1°	96260433
MICA SLIM S LED HOLO FILM 60X60°	96260434
MICA SLIM S LED HOLO FILM 75X45°	96260435
MICA SLIM A LED HOLO FILM 60X1°	96260436
MICA SLIM A LED HOLO FILM 60X60°	96260437
MICA SLIM A LED HOLO FILM 75X45°	96260438
MICA SLIM I LED HOLO FILM 60X1°	96260439
MICA SLIM I LED HOLO FILM 60X60°	96260440
MICA SLIM I LED HOLO FILM 75X45°	96260441

Dyana LED NEW

www.thornlighting.com/**DYNA**





A stylish and powerful road lantern employing LED technology compliant with EN 13201, up to Me3 lighting classes

- Available in three outputs up to 6000lm with greater performance and lower cost of ownership compared to previous model
- Patented high performance street optic® for Longitudianal flux distribution and glare control
- Choice of mountings (top or lateral) and tiltings (0°, 5° and 10°) in one code
- Power reduction and lighting management solutions as standard

Applications

- City streets and residential roads
- Cycle paths
- City square
- Car parks
- Parks and gardens





Lamp information

- Typical values (including gear losses) 2000lm (28W), 4000lm (56W), 6000lm (84W)
- Lifetime 70,000 hours @L70 Ta 25°C (80,000 hours Ta 15°C) Increased lifetime with dimming
- BP8-50: autonomous system with 50% of power reduction = 50% flux reduction, 3H before the middle of the night and 5H after
- Colour temperature: 4200K – 3000K on request
- CRI:70

Materials/Finish

Body, spigot and canopy: die-cast aluminium, textured anthracite finish (Akzo 900).
Flat glass cover: 5mm thick toughened glass.
Gaskets: Ethylene Propylene Diamine rubber (EPDM)

Installation/Mounting

Optimised street optic for good control and comfort
Dedicated range of Satys (Thorn range) columns and brackets.
Side-entry mounting Ø60mm, tilt = 0°, -5°. Post-top mounting Ø60mm and Ø76mm, tilt = 5°, 10°. End cap secured by 2 screws.
Slim section: only 92mm thick. Supplied complete and ready to install, in a single box. Weight: 12kg max.

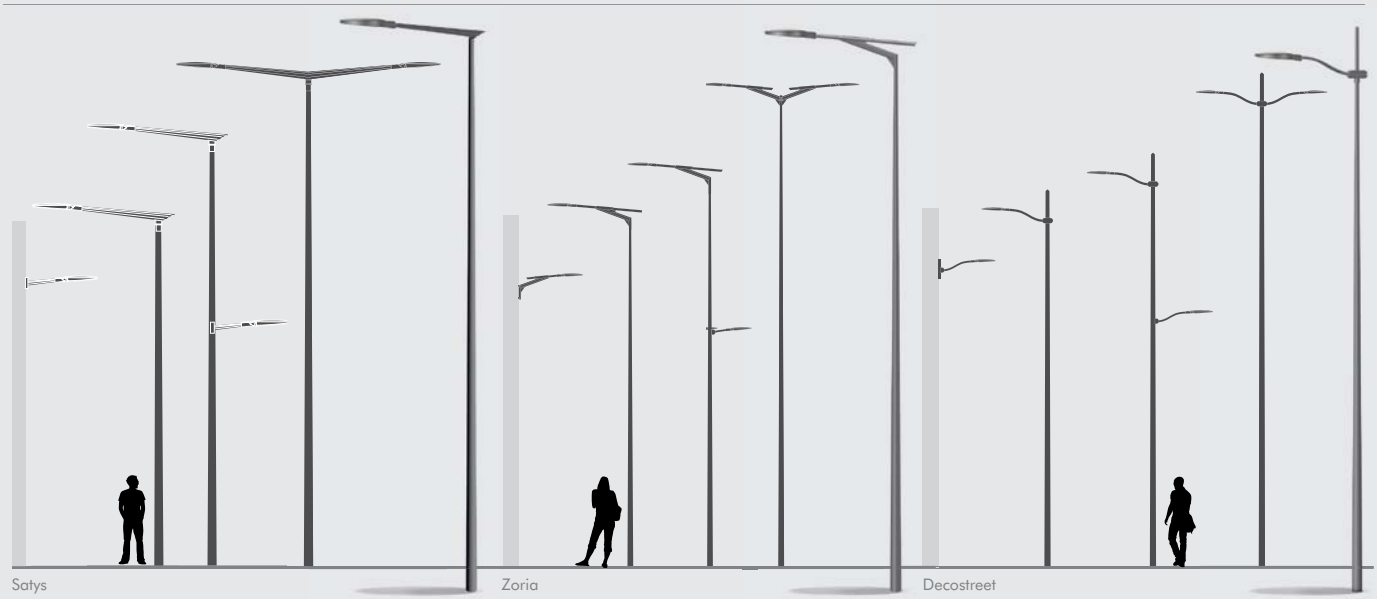
Standards

CE EN 60598 EN40 EN 13201 IP66 IK10 T_a 0 +25

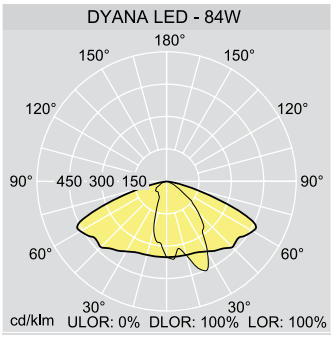
Lamps

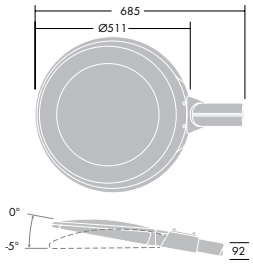
28-84W

Harmonised bracket design

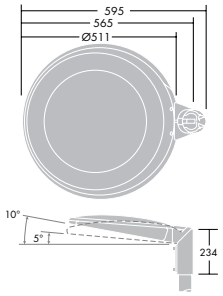


Overview





LED MLE



LED MTP

Specification

To specify state:
IP66 aluminium decorative streetlighting lantern. Reversible mounting (side entry or top mountings), options of tiltings, 60mm and 76mm diameters.
With options for dimming and lighting management system.
As Thorn Dyana LED.

Ordering Guide

Supplied complete with LEDs

Description	SAP Code
Class 2	
DYANA LED700 28W/BP8-50 CL2 MLE60	96261003
DYANA LED700 56W/BP8-50 CL2 MLE60	96260745
DYANA LED700 84W/BP8-50 CL2 MLE60	96260746
DYANA LED700 28W CL2 MLE60	96261124
DYANA LED700 56W CL2 MLE60	96261125
DYANA LED700 84W CL2 MLE60	96261126
DYANA LED700 56W/LDRF CL2 MLE60	96261007
DYANA LED700 28W/LDC CL2 MLE60	96261008
DYANA LED700 56W/LDC CL2 MLE60	96261014
DYANA LED700 84W/LDC CL2 MLE60	96261010
DYANA LED700 84W/LDRF CL2 MLE60	96261013
DYANA LED700 28W/BP8-50 CL2 MLE60 G7M	96261015
DYANA LED700 56W/BP8-50 CL2 MLE60 G7M	96261016
DYANA LED700 84W/BP8-50 CL2 MLE60 G7M	96261017
DYANA LED700 28W/BP8-50 CL2 MA76 G7M	96261021
DYANA LED700 56W/BP8-50 CL2 MA76 G7M	96261022
DYANA LED700 84W/BP8-50 CL2 MA76 G7M	96261023
DYANA LED350 40W/BP8-50 CL2 MTP60 N8M	96261130

Description	SAP Code
Class 2	
DYANA LED500 58W/BP8-50 CL2 MTP60 N8M	96261131
DYANA LED700 84W/BP8-50 CL2 MTP60 N8M	96261132
DYANA LED350 40W CL2 DALI MTP60 N8M	96261133
DYANA LED500 58W CL2 DALI MTP60 N8M	96261134
DYANA LED700 84W CL2 DALI MTP60 N8M	96261135
Class 1	
DYANA LED700 28W/BP8-50 CL1 MLE60	96261027
DYANA LED700 28W/BP8-50 CL1 MLE60 PM	96261127
DYANA LED700 56W/BP8-50 CL1 MLE60	96261028
DYANA LED700 56W/BP8-50 CL1 MLE60 PM	96261128
DYANA LED700 84W/BP8-50 CL1 MLE60	96261029
DYANA LED700 84W/BP8-50 CL1 MLE60 PM	96261129

N8M - G7M : pre-wired with 8m and 7m cables
MLE Delivered lateral mounted
MTP Delivered post top mounted
MA Delivered for 76mm diameter mounting

Christian IV LED NEW

www.thornlighting.com/**CHIV**





Decorative steet lighting lantern offering the latest LED technology and dimming control for residential and urban street applications

- Effortlessly blends into the urban environment and available in two ratings from 22W (1900 lm) to 32W (2500 lm)
- Fitted with a Bi power switch* to instantly activate 3hrs before nighttime and 5hrs after to cut energy consumption by 50 per cent, with no affect on colour rendering or colour temperature
- Easy to maintain with a long service life and potential to retrofit conventional versions
- Designed around perfect heat control and resistance to outside elements, the self-cleaning shape delivers accurate performance in tough outdoor conditions

Applications

- City streets and residential roads
- City squares
- Cycle paths





Lamp information

- Typical values 1900/2500lm
- Lifetime 70,000 hours @L70 Ta25°C
- 4000K as standard, 3000K on request

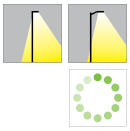
* Product supplied with switch activated.

Standards

CE EN 60598 EN 13201 IK08 T_a25 IP66

Lamps

22-32W



Bi-power switch

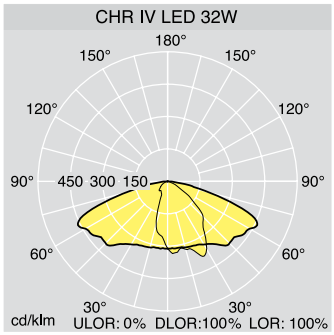


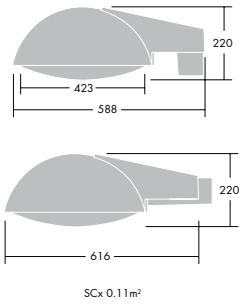
Features our easy to access on/off Bi power switch to instantly activate night time dimming to cut energy consumption by 50% for eight hours in the night, with no effect on colour rendering or colour temperature



ROAD LIGHTING/URBAN AMENITY

Overview





Ordering Guide

Supplied complete with LEDs

Description	Weight (Kg)	SAP code
CHR IV LED350 22W/BP CL2 ANT MTP N8M	9.6	96210066
CHR IV LED500 32W/BP CL2 ANT MTP N8M	9.6	96210067
CHR IV LED350 22W/BP CL2 ANT MLE N8M	9.6	96210070
CHR IV LED500 32W/BP CL2 ANT MLE N8M	9.6	96210071
CHR IV LED500 32W/BP CL2 ANT MTP F6M	9.6	96210075
CHR IV LED500 32W/BP CL2 ANT MLE F6M	9.6	96210079

F6M - precabled with 6m HO7RN-F 2x1.5mm² cable
N8M - precabled with 8m H05 W-F 2x1.5mm² cable
MTP - post top mounted
MLE - lateral mounted

Materials/Finish

Body: die-cast aluminium powder coated anthracite close to RAL 7024. Other RAL colours available on request.
Enclosure: low bowl, UV stabilised clear polycarbonate
Fixing screws: stainless steel.

Installation/Mounting

Suitable for post top mounting, spigot Ø 60mm, or side entry. Recommended mounting height 3-6m.

Access to removable driver via 3 screws on diffuser

Supplied pre-wired with 8m H05 W-F and 6m HO7RN-F, 2 x 1.5mm² cables in a single box and ready to install (N8M and F6M)

Specification

To specify lantern state: IP66 post top or side entry decorative street lantern made of die cast aluminium powder coated dark grey finish for 1900/2500lm LED with dimming function. Easy to install and maintainable luminaire designed to offer durable lighting performances. Suitable to cover wide scope of applications up to S2. As Thorn Christian IV LED.

Sensa Range NEW

www.thornlighting.com/**SENS**



Lighting management system which is based on the twin principles of comfort and energy saving

- Flexible configuration, even for retrofits (lighting groups are not wire-bound)
- Compatibility and future-proof design
- Extensive functionality
- Simple and clear handling
- Wide range of interfaces to other systems

Lighting Controls - Energy efficiency made easy

We need a variety of strategies and technologies to help us control lighting to produce an optimal lit space that uses minimal energy. These are:

Presence/Absence detection
Artificial lighting responds to the occupancy of a space. **Average saving 24%**

Daylight linking
Artificial lighting responds to the natural light conditions. **Average saving 28%**

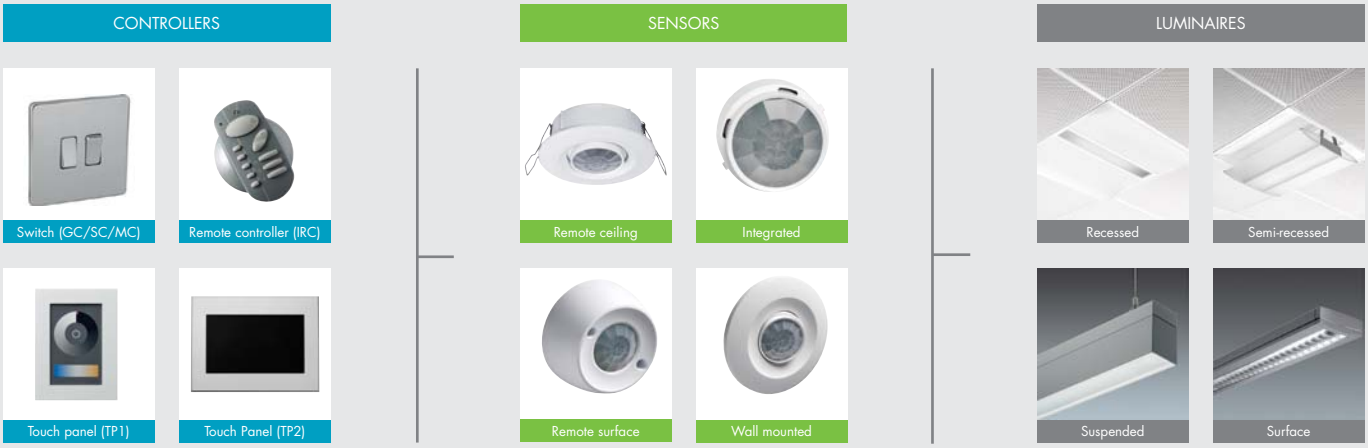
Constant illuminance
A function designed to produce correct lighting levels for the duration of the maintenance period

Task/Scene setting
Allows the user to set scenes and adapt the lighting to different tasks.
Average saving 36%

Timed sequence/off
Automatic cut-off can be installed to turn all electricity off during unoccupied hours

The average savings taken from paper comparing 240 studies of energy savings using different technologies, give an indication of typical average savings from different lighting controls strategies.*
**Lighting Controls in Commercial Buildings*
A. Williams, B. Atkinson, K. Garbesi, E. Page, F. Rubinstein
LEUKOS Vol 8 No 3 January 2012

Sensa range



Overview To ensure the correct components are specified please contact your local Thorn sales representative.

	Functionality		Controllers					Sensors
			GC/SC	MC	SQM	TP1	TP2	
	Task/Scene setting- Scene control	Groups and scenes can be easily switched and dimmed with the group and scene control modules SENSA GC/SC/MC.	✓	✓				
	Task/Scene setting - Multi-functional control	The Sensa MC (multi-controller) and the Touch panel (TP2) open a wide range of functions offering maximum flexibility such as scene setting, manual dimming of programmable groups of lighting and sequencing for automatic colour/scene changes. Each input can have a different function to meet the project requirements.		✓			✓	
	Task/Scene setting- Automatic scene control (sequence)	Using the Sensa SQM predefined lighting scenes can be easily combined into a self-executing sequence. Up to 16 lighting scenes can be recalled one after another in a user-defined time meaning that automatic control of all lighting load types can be realised.			✓			
	Presence/Absence Daylight linking control	Energy-efficient solutions can be created in combination with remote or integral sensor heads, offering daylight dependant and/or presence/absence control. A remote control extends the functionality of the SENSA S2 and enables the system to be maunually operated.	✓*	✓*				✓
	Timed sequence/off - Convenient operation and programming	Dynamic lighting can be easily provided thanks to the Sensa Touch Panel TP2. 16 luminaire groups each with the ability to select 16 user-defined lighting scenes can be controlled. Daily, weekly or monthly calendar events can be stored within the TP2 along with programmable timed sequences for dynamic and colour changing requirements.	✓*	✓*		✓*	✓	✓*
	Comfortable configuration with a PC	Complex installations can be easily addressed and programmed on a PC (connection via DALI USB). The functionality of individual devices can be easily optimised.		✓		✓		✓

✓* - optional

Sensa TSC NEW

www.thornlighting.com/**SENS**





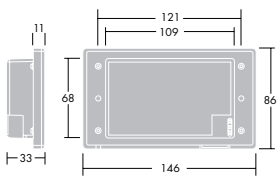
Power at your finger tips

- Whether you just want to save energy by dimming or switching off your lighting, set task or comfort scenes or control LED coloured facade lighting with ease, the new Sensa TSC puts the power at your fingertips.
- Microprocessor based system specifically designed for the control of commercial and architectural lighting.
- Capacitive touch screen with customisable user interfaces supporting multiple pages of control to provide visual feedback.
- Built-in learning IR sensor, with the ability to associate IR commands with touch screen controls.
- Data stored in a non-volatile solid-state memory, uploaded from a remote personal computer over an Ethernet or web connection.
- Internal real-time clock operates when power is absent.

Lighting Controls - Energy efficiency made easy

Task/Scene setting
Allows the user to set scenes and adapt the lighting to different tasks

Overview



A new approach to Lighting Control

The Sensa TSC is not just another touch screen. Behind the tinted 4 x 6 screen lies a compact yet powerful computer with the ability to simultaneously control:

- Indoor/Outdoor Lighting
- Architectural colour changing LED lighting
- Scheduled lighting scenes
- Audio Visual equipment

The Sensa TSC also has the ability to share information with your BMS system.

Screen

- Resolution: 480x272
- Colour depth: 24 bit
- Brightness: 340 cd/m^2

Physical

- Screen diagonal 4.3"
- Wall mounting in UK 2-gang 35mm or customer US 2.5" back box, available separately
- Configuration and reset buttons beneath magnetic overlay
- Operating temperature range 0°C to 50°C
- CE compliant and ETL/cETL listed

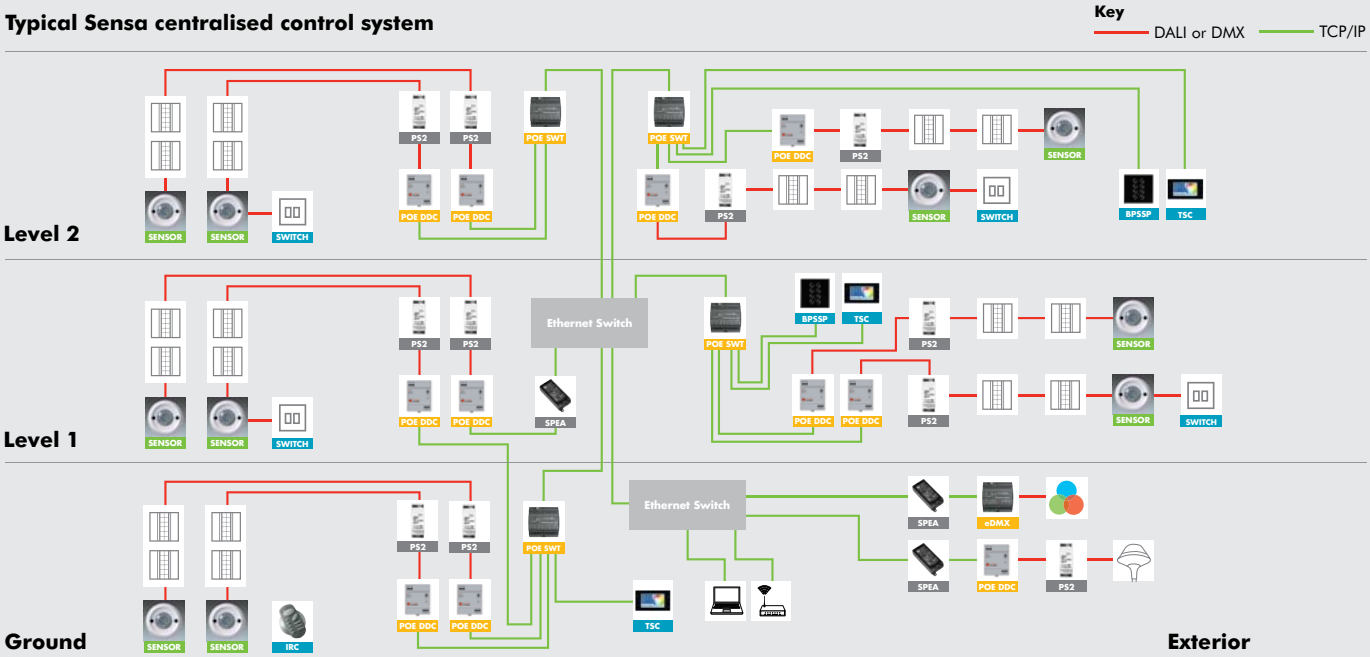
Electrical

- RJ45 socket for 10/100Base-TX Ethernet
- IEEE 802.3af PoE Device (typical power consumption 4W)

Standards

CE T_a 0 +50

Typical Sensa centralised control system



System Overview

The Sensa TSC is an Ethernet based lighting controller with the additional benefit of incorporating a touch screen interface with fully customisable graphics to suit any installation. The flexibility of using a controller with an inbuilt touch screen means we give the system user full ability to change their surroundings at the touch of a button.

The TSC could be located within a conference room, facilities office or even a riser cupboard but still take control of lighting throughout the entire building. Within a building wide control system the TSC would be acting as the 'brain' for the installation regardless of its location or the graphics displayed on the screen itself. Sensa scene plates such as the BPS SP can be used alongside the TSC to allow for localised control.

An installation consisting of 1 TSC gives the ability to control and monitor 16 DALI networks (1024 DALI devices) on top of this each TSC within an installation also allows for the control of 1 universe of DMX (512 channels) however each subsequent TSC within an installation adds a further universe of DMX (that's an additional 512 channels of DMX per TSC).

If more than 16 DALI networks need to be controlled within a building or if multiple DMX universes are required a larger capacity Sensa server can be added to the system to allow for this. This Ethernet based approach to connecting control devices and controlling lighting can be scaled to any size allowing for the control of an unlimited number of DALI and DMX devices.

System Features

- PoE (power over Ethernet) devices.
- Unlimited number of DALI and DMX control channels.
- All controllers and interfaces can be placed on an existing corporate network or a dedicated lighting or building controls network. DALI and DMX data can be routed to any location within an installation.
- Built in heat and light sensors within the TSC can be used to adjust lighting levels or even to control the heating and air conditioning within a building.
- Integration with building management systems and/or audio visual systems is done so directly from the TSC using Ethernet removing the need to purchase expensive interface modules as other lighting control systems may require.
- Low cost cabling between control devices such as Cat5.e.
- Commissioning of DALI and DMX lighting can be done by connecting a personal computer to a wired or wireless network.
- Pixel matrices and LED mapping allow for large scale LED installations.

Conditional logic allows for time and environment based lighting triggers, meaning that the functionality of the system can change automatically based on the state of other control devices, time of day/week/month/year, the temperature within a room and as far to say even on the phase of the moon at night time using a Lunar reference during setup. Seasonal triggers can control the state of the system based on the time of year meaning that true dusk and dawn times are used for exterior and interior lighting applications.

Ordering Guide

To ensure the correct components are specified please contact your local Thorn sales representative.

Description		SAP Code
CONTROLLERS		
SENSA GC	Control module to change intensity and ON/OFF of lighting groups	96550413
SENSA SC	Control module to recall four lighting scenes	96550414
SENSA MC	Control module which can recall scenes, dim up/down, start sequences and work alongside Sensa S2 sensors	96550415
SENSA IRC	Handheld remote control. Works with Sensa S2 sensors and Sensa TSC	96550422
SENSA TSC	Touch Screen Controller for centralised DALI and DMX lighting control with BMS/AV integration	96550432
SENSA BPS SP	Scene plate	96550550
POWER SUPPLY		
SENSA PS2	SENSA DIN rail power supply (240 mA)	96550411
SENSA PS3	48Vdc power supply for Sensa PoE SWT	96550437
SENSA SPEA	Single port PoE injector for powering PoE devices locally	96550551
SENSORS		
SENSA S2 SF	Remote surface	96550419
SENSA S2 RC	Remote ceiling	96550420
SENSA S2 WM	Wall mounted	96550421
AUXILIARY DEVICES		
SENSA PoE SWT	5 port Ethernet switch (4 ports are PoE)	96550438
SENSA eDMX	Ethernet to DMX512 converter	96550439
SENSA PoE DDC	DALI gateway	96550440




SØR

THORN
LIGHTING PEOPLE

Thorn Lighting Main Offices

Thorn Academy of Light
Durhamgate, Spennymoor
County Durham DL16 6HL, UK
Tel: (44) 1388 420 042
E-mail: academy@thornlighting.com
Website: www.thornacademyoflight.com

Australia
Thorn Lighting Pty Limited
43 Newton Road, Wetherill Park
NSW 2164
Tel: (02) 8786 6000
Fax: (02) 9612 2700
E-mail: infoaustralia@thornlighting.com
Website: www.thornlighting.com.au

Austria
Thorn Licht GmbH
Donau-City-Straße 1,
1220 Wien, Austria
Tel: (43) 1 202 66 11
Fax: (43) 1 202 66 11 82712
E-mail: office.at@thornlighting.com
Website: www.thornlighting.at

Benelux
Rijksweg 47 A
Industriezone Puurs Nr. 442
BE- 2870 Puurs, Belgium
Phone: +32 (0)3 860 16 60
Fax: +32 (0)3 860 16 69
e-mail: infobe@thornlighting.com
infonl@thornlighting.com
infolu@thornlighting.com

China
Thorn Lighting (Guangzhou) Limited
No.12 Lianyun Road, Eastern Section, GETDO
Guangzhou 510530 P.R.China
Tel: (86) 20 3228 2706
Fax: (86) 20 3228 1777
E-mail: sales.cn@thornlighting.com

Thorn Lighting (Tianjin) Co. Ltd
332 Hongqi Road, Tianjin 300190, China
Tel: (86) 22 8369 2303
Fax: (86) 22 8369 2302
E-mail: info.tj@thornlighting.com

Croatia
Dravska 17
HR- 42000 Varazdin
Tel: +385 42 290 471
+385 42 290 474
Fax: +385 42 290 470
E-mail: officehr@thornlighting.com
Website: www.thornlighting.com.hr

Czech Republic
Thorn Lighting CS spol. s r.o.,
Pekařská 621/7, 155 00 Praha 5
Czech Republic
Tel: (420) 224 315 252
Fax: (420) 233 326 313
E-mail: thorn.cz@thornlighting.com
Website: www.thornlighting.cz

Denmark
Thorn Lighting A/S
Stamholmen 155, 5. sal,
2650 Hvidovre, Denmark
Tel: (45) 76 96 36 00
Fax: (45) 76 96 36 01
E-mail: info.dk@thornlighting.com
Website: www.thornlighting.dk

France
Thorn Europhane SA
156 Boulevard Haussmann,
Cedex 08, Paris 75379, France
Tel: (33) 1 49 53 6262
Fax: (33) 1 49 53 6240
Website: www.thornlighting.fr

Hong Kong
Thorn Lighting (Hong Kong) Limited
Unit 4301, Level 43, Tower 1,
Metroplaza, 223 Hing Fong Road,
Kwai Chung, N.T., Hong Kong
Tel: (852) 2578 4303
Fax: (852) 2887 0247
E-mail: info.hk@thornlighting.com

India
Thorn Lighting India Pvt. Ltd.
Unit No. 404, Western Edge-I
4th Floor, Located at CTS 163A/165
W.E Highway, Borivali (E)
Mumbai - 400 066, India
Board line: +91-22-40481900
Fax: +91-22-40481900
E-mail: international_sales@thornlighting.com
Website: www.thornlighting.in

International Sales
Thorn Europhane SA
156 Boulevard Haussmann
Cedex 08, Paris 75379, France
Tel: (33) 1 49 53 6262
Fax: (33) 1 49 53 6270
Email: international_sales@thornlighting.com
Website: www.thornlighting.com

Ireland
Thorn Lighting (Ireland) Limited
Century House
Harolds Cross Road
Dublin 6W
Tel: (353) 1 4922 877
Fax: (353) 1 4922 724
E-mail: dublinsales@thornlighting.com
Website: www.thornlighting.co.uk

Italy
Thorn Europhane Spa
Via G Di Vittorio, 2, Cadriano di Granarolo,
Bologna 40057, Italy
Tel: (39) 051 763391
Fax: (39) 051 763088
E-mail: info@thornlighting.it
Website: www.thornlighting.it

New Zealand
Thorn Lighting (NZ) Ltd
399 Rosebank Road, Avondale,
Auckland 1026
PO Box 71134, Rosebank,
Auckland 1348
Tel: (64) 9 828 7155
Fax: (64) 9 828 7591
E-mail: info.NZ@thornlighting.com
Website: www.thornlighting.co.nz

Norway
Thorn Lighting AS
Strømsveien 344, 1081 Oslo,
Norway
Tel: (47) 22 82 07 00
Fax: (47) 22 82 07 01
E-mail: info.no@thornlighting.com
Website: www.thornlighting.no

Poland
Thorn Lighting Polska Sp.z.o.o.,
Ul. Gazowa 26A, Wrocław 50-513,
Poland
Tel: (48) 71 7833 740
Fax: (48) 71 3366 029
E-mail: thorn.pl@thornlighting.com
Website: www.thornlighting.pl

Russia
Thorn Lighting
Novoslobodskaya Str., 21, office 406
Business Center "Novoslobodskaya 21",
Moscow 127030, Russia
Tel: (7) 495 981 35 41
Fax: (7) 495 981 35 42
E-mail: office.moscow@thornlighting.com
Website: www.thornlighting.ru

Singapore
Thorn Lighting (Singapore) Pte Ltd
5 Kaki Bukit Crescent, 04-02 Koyotech
Building, 416238 Singapore
Tel: (65) 6844 5800
Fax: (65) 6745 7707
E-mail: info.sg@thornlighting.com

Slovenia
Thorn Lighting
Dunajska cesta 159
Ljubljana, SI- 1000
Tel: +386 31 388 965
Fax: +386 1 56 09 865
E-mail: office.si@thornlighting.com
Website: www.thornlighting.si

Sweden
Thorn Lighting AB
Industrigatan, Box 305, SE-261 23
Landskrona, Sweden
Tel: (46) 418 520 00
Fax: (46) 418 265 74
E-mail: info.se@thornlighting.com
Website: www.thornlighting.se

United Arab Emirates
Thorn Lighting Ltd Dubai
Al Shoala Building, Office 301,
Block E, Airport road, P.O. Box 1200,
Deira, Dubai, UAE
Tel: +971 (0) 4 294 8938
Fax: +971 (0) 4 294 8838
E-mail: marketing.mena@thornlighting.com
Website: www.thornlighting.com

United Kingdom
Thorn Lighting Ltd
Durhamgate, Spennymoor,
County Durham, DL16 6HL
Tel: +44 (0) 1388 42 00 42
Fax: +44 (0) 1388 42 01 56
Email: brochures.uk@thornlighting.com
Website: www.thornlighting.co.uk

www.thornlighting.com

Cover photography: Ile Monsieur, Boulogne.

© Studion 1+1

Thorn Lighting is constantly developing and improving its products. All descriptions, illustrations, drawings and specifications in this publication present only general particulars and shall not form part of any contract. The right is reserved to change specifications without prior notification or public announcement. All goods supplied by the company are supplied subject to the company's General Conditions of Sale, a copy of which is available on request. All measurements are in millimetres and weights in kilograms unless otherwise stated. Printed on Luxo Light.

Publication No: 547 (IS) Publication Date: 10/12

www.pefc.org PEFC PEFC/08-38-214