THORN
LIGHTING

LED RETROFIT SOLUTIONS

ROAD & STREET, URBAN AND TUNNEL

LED RETROFIT SOLUTIONS

Created by Thorn, for Thorn, our range of LED retrofit kits are the ideal solution to upgrade luminaires with HID or early LED light engines to the latest LED technology. Designed in-house by the people who know these luminaires best, these retrofit kits are designed for straightforward and efficient installation to enable you to get the best out of your lighting schemes for years to come.

Upgrading your existing luminaires offers a number of advantages in terms of project cost, timescale and sustainability. It also provides the opportunity to preserve the existing aesthetic of a lighting scheme. Benefit from improved performance, the latest optical technology and greater energy efficiency – and the assurance that comes with buying retrofit solutions made by Thorn, for Thorn.

Road & street lighting

Urban lighting

Tunnel lighting

WHY RETROFIT?

REDUCED ENERGY CONSUMPTION

Compared to HID lighting, upgrading to LED offers significant energy savings, reducing environmental impact, running costs and, ultimately, Total Cost of Ownership (TCO).

EFFICIENT UPGRADE SOLUTION

Thorn's range of retrofit solutions are designed for fast, simple installation making LED retrofitting a time- and cost- effective solution compared to full luminaire replacement.

SMART CONTROLS

Get ready for the future with integrated connectivity and control options, including Zhaga D4i and DALI controls.

CULTURAL AND ENVIRONMENTAL BENEFITS

Refurbishment preserves the existing aesthetic of a lighting scheme, ensuring continuity and reinforcing a cohesive regional identity and style. Upgrading lanterns with the latest lighting technology enhances optical performance and comfort for the community while also incorporating ecological best practices to minimize the impact of artificial light on wildlife.

CIRCULAR DESIGN

As part of the Zumtobel Group, at Thorn we follow a series of principles of circular design. Zumtobel Group developed these Circular Design Rules in cooperation with EPEA Switzerland and design studio EOOS as a strategic and practical tool to implement aspects of the Circular Economy into new product development.

CIRCULAR SOURCING

1. Recycled Content: The share of recycled materials should be as high as possible. By increasing the recycled content, we can also reduce the footprint of our products.

2. Material Health: Materials are assessed as per Cradle to Cradle standards, with harmful substances identified and removed in cooperation with the manufacturers.

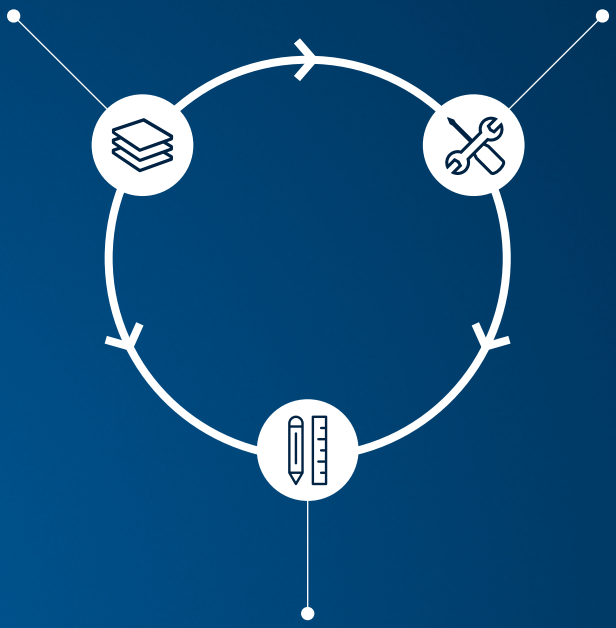
3. Recyclability: We aim to use materials that can be efficiently reintroduced into recycling systems after use.

CIRCULAR SYSTEMS

1. Maintenance & Upgrade: We ensure spare parts, refurbishment kits, and services are available to help customers extend the lifespan of luminaires.

2. Reuse & Remanufacturing: We prevent used luminaires from being discarded by offering refurbishment or second-use options through our expertise and partner networks.

3. High Value Recycling: We establish partnerships to separate and recycle materials, allowing parts of old luminaires to be reused in new products, closing the recycling loop.



CIRCULAR DESIGN

1. Design for Disassembly: Components should be easily separable for reuse or recycling, avoiding gluing or welding.

2. Design for Longer Lifetime: Materials and components with long lifespans are prioritized to extend the luminaire's use.

3. Design for Maintenance & Upgrade: The design considers the possibility of refurbishment and upgrades, integrating spare parts and interfaces for digital solutions. Components are designed so that they can be easily replaced or upgraded without damaging other parts of the luminaire during repairs.

WE C

SUSTAINABLE ROADS, STREETS AND URBAN SPACES

Lighting certain outdoor spaces is essential for safety and comfort. Sustainable lighting harmonises ecological responsibility and livability, driven by energy-efficient LED technologies that reduce power consumption, cut carbon emissions, and lower energy costs.

Sustainable lighting practices help us to reduce energy consumption and cost, minimise light pollution and enhance safety – both actual and perceived.

BUILD BACK BETTER GREEN

GOLD | Top 5%
ecovadis
Sustainability Rating
MAY 2024

CARE

SUSTAINABLE DEVELOPMENT GOALS

UNITED NATIONS SUSTAINABLE DEVELOPMENT ALIGNMENT

INDUSTRY, INNOVATION & INFRASTRUCTURE

The intention of SDG 9 is to build resilient infrastructure, promote sustainable industrialisation, and foster innovation. By using energy-efficient lighting technologies and implementing smart lighting controls, street lighting can reduce energy consumption and promote sustainable infrastructure development.

RESPONSIBLE CONSUMPTION & PRODUCTION

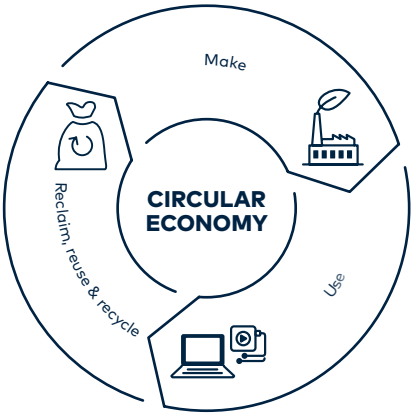
Our production facilities are fully focused on their waste streams. Over the past two years they have been able to identify that nearly half (41%) of waste comes from clean cuts – i.e. surplus materials created during manufacturing processes. They also established that 24% comes from cardboard, 10% from wood, 10% from polycarbonate, 10% from general waste and the remaining 4% is scrap product.

CLIMATE ACTION

Street lighting has an important role to play in advancing SDG 13, which aims to take urgent action to combat climate change and its impacts. By using energy-efficient lighting technologies, such as LEDs, and our UrbaSens control platform, you can help reduce energy consumption and greenhouse gas emission.

RESPECTING THE ENVIRONMENT

6 PRINCIPLES FOR SUSTAINABILITY



01

CIRCULAR ECONOMY

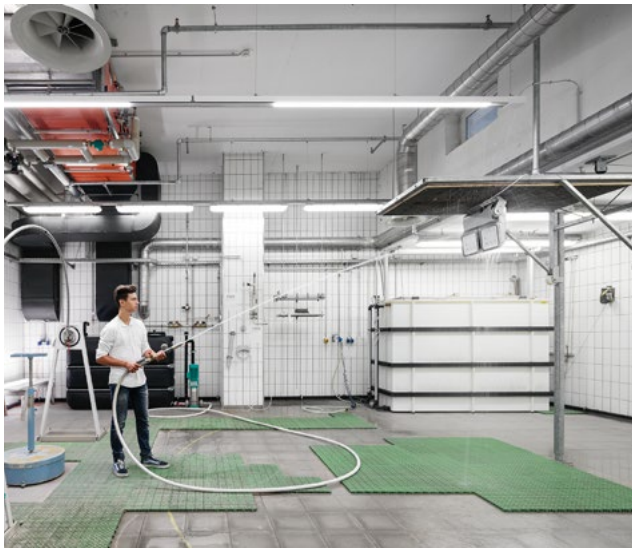
Thorn aims to improve resource efficiency through better waste management. Focusing on minimising and preventing waste throughout a product's lifecycle and recycling valuable materials. With the adoption of the BS 8001 standard Thorn aims to implement circular economy principles within its business processes.

02

ENERGY SAVINGS

Intelligent controls, innovative optics and LEDs all play a part in providing better lighting while consuming less materials and energy. For Thorn, the challenge is to generate energy savings without compromise on any level.

Thorn also takes into account additional sustainability aspects in the production environment. This includes optimising the use of resources in order to ensure careful utilisation and low losses as well as avoiding any surplus production.



INGRESS PROTECTION RATING (IP) TESTING LABORATORY

03

SUSTAINABLE MATERIAL CHOICES

We choose materials that will prolong a products life, delivering performance even in coastal and chloride rich environments.

Many product ranges feature special coatings on critical parts to comply with C5 class in accordance with ISO 9223.

We perform robustness tests to guarantee product durability in all intended environments.

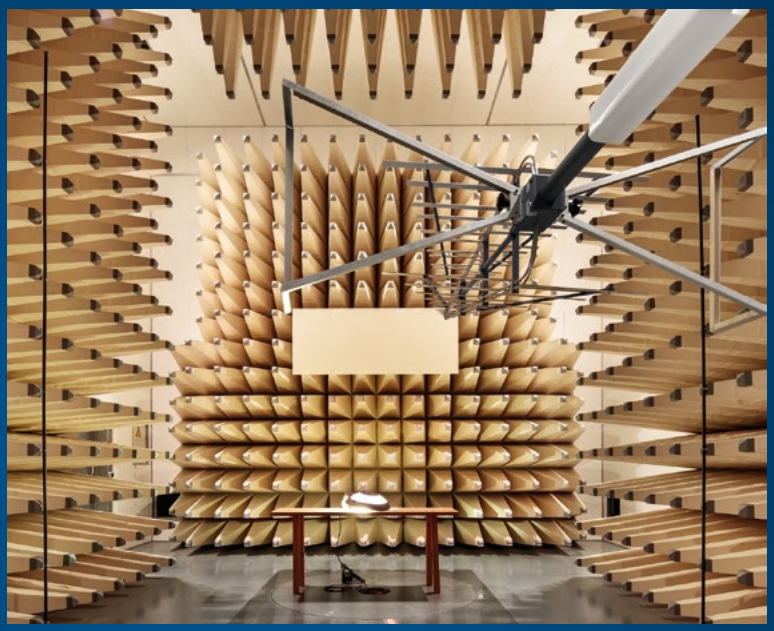
04

ENVIRONMENTAL PRODUCT DECLARATION (EPD)

We provide Environmental Product Declarations (EPD) as standard. This allows insights and detailed information on the life-cycle performance of products and the environmental impact of the materials and components used. They also detail functional and technical properties and end-of-life considerations.

Further assessment factors include the acidification, eutrophication and global warming potential of a product.

The information given by an EPD is relevant for environmental certifications such as LEED, BREEAM or ÖGNI and it also helps customers select the most sustainable products.
More information can be found on our website.



ELECTROMAGNETIC COMPATIBILITY (EMC) TESTING LABORATORY

05

CONSTANT RESEARCH AND INNOVATION

We build on our 90 years of expertise and experience to make sure that we are always ahead of the game with the latest technology, the most reliable services and prices that work for everyone.

For decades Thorn has been at forefront of lighting technology. The in-house R&D and innovation experts push lighting engineering and electronics further to bring customers the very best solutions.

06

CORPORATE SOCIAL RESPONSIBILITY

Today corporate responsibility is not passive, it's active. It plays a huge role in how a company is perceived publicly, and it forms part of a corporate identity.

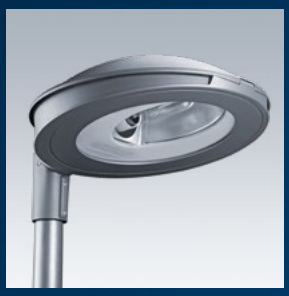
In May 2024 the Zumtobel Group, to which Thorn belongs, was awarded a Gold medal for its commitment to sustainability by the international and independent rating agency EcoVadis. Zumtobel Group AG is in the top 5% of companies assessed by EcoVadis in the manufacture of electrical luminaires and components in the lighting sector.

GLOBAL ROAD & STREET RETROFIT KITS

COMPATIBLE WITH:

Christian IV, Deco Street 1, Deco Street 2, Oracle S, Oracle 1, Oracle 2, Dyana 1






One retrofit kit for many Thorn lanterns! Our global road & street retrofit kit has been designed to be compatible with a selection of classic Thorn luminaires. The kit can be ordered with either an IP67 driver (base version) or D4i driver (premium version), and comes with a fitting kit bespoke to each luminaire model to ensure a smooth installation process. The optical block can be adapted to the needs using Thorn's myProduct configurator.

Colour temperature	2200 K / 2700 K / 3000 K / 4000 K
Luminous flux	Up to 8000 lm (4000K) Up to 7000 lm (3000K)
Lm/W	Up to 145 lm/W
IP rating*	IP66
IK rating*	IK08
Electrical class	Class 2

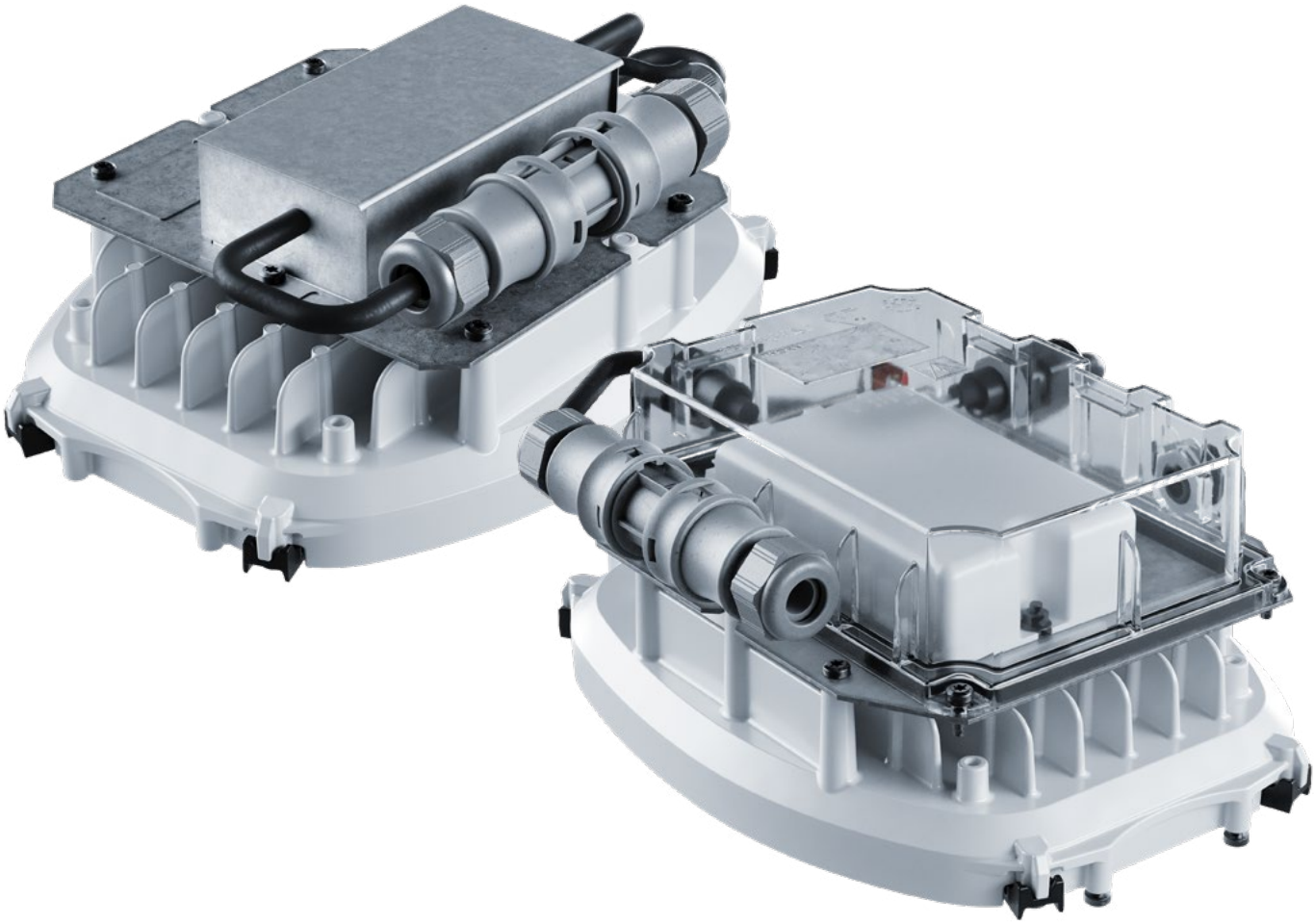
Upward light output ratio (ULOR)	0 %
Optics	R-PEC: Narrow Road, Wide Street, Extra-Wide Road, Extra-Wide Road Comfort
Number of LEDs	12 / 24 LEDs
Lifetime rating	L98B10 (up to 700 mA) 100 000 hrs @ 25°C
Surge protection	10 kV (3 pulses), optional 10 kV multipulse
CRI	70

*Existing fitting should maintain IP65 rating.

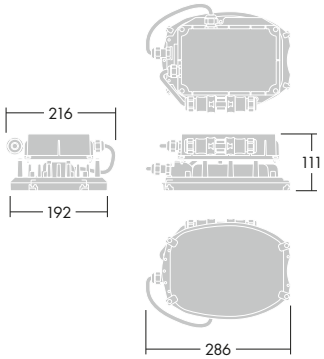
CONTROLS

Bi-Power (BP), DALI dimmable and DALI wiring: HFX

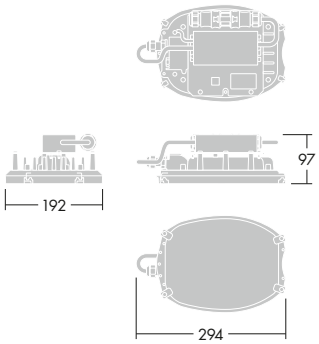
Zhaga Down interface possible via Custom Product Request



HID	Efficacy (lm/W)	High power LED equivalent	Recommended LED variant	Energy savings (approx.)
50 W	60	19 W	12 LEDs, 500 mA	60 %
70 W	65	30 W	24 LEDs, 500 mA	60 %
100 W	80	50 W	24 LEDs, 700 mA	50 %



PREMIUM VERSION



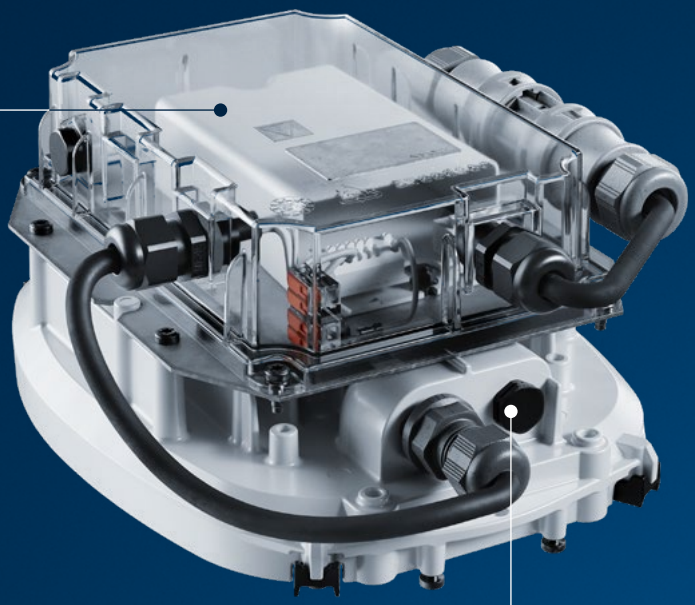
BASE VERSION

GLOBAL ROAD & STREET RETROFIT KITS

PREMIUM VERSION

TRIDONIC LCO Premium – D4i Driver (40 W) protected by IP66 rated polycarbonate cover

NFC programmable through cover to facilitate late stage configuration and benefit stock management, deployment schedules, etc.

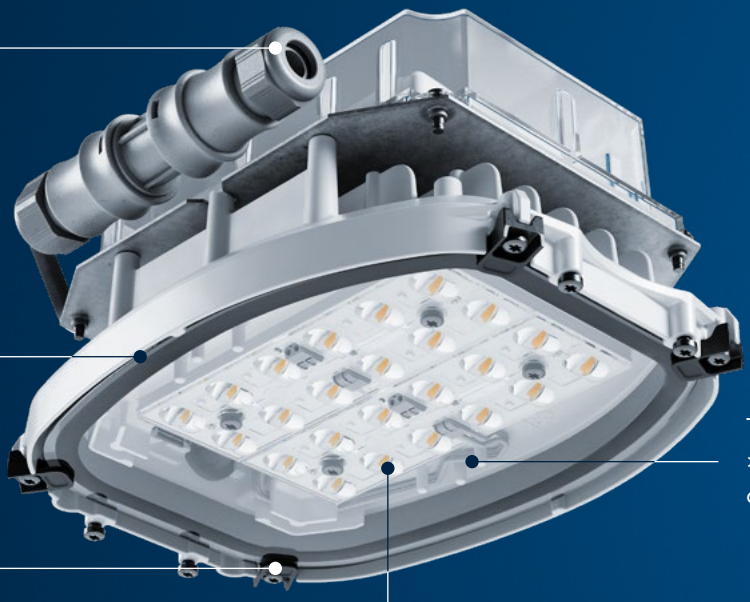


Breather to maintain constant pressure balance and preserve electronic components

Wire input, delivered pre-wired with 50cm of HO7RNF 1.5mm² and Wieland quick connector

Specifically designed gasket for long term waterproofnesss

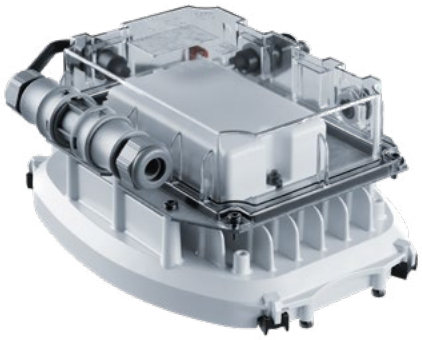
Glass retainers, with proven effectiveness in a range of other Thorn luminaires



Tempered glass with > 91 % light transmission and 4mm thickness

Thorn's standard R-PEC LED OSRAM high power modules

OPTICAL BLOCK AND DEDICATED FITTING KIT



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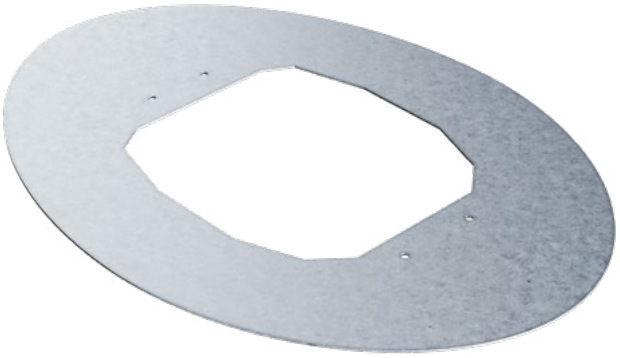

FULL RETROFIT SOLUTION

Each retrofit kit consists of a configurable optical block (1 SKU) and dedicated fitting kit (1 SKU), which is tailored to each model of lantern for an optimal fit. Select the correct fitting kit SKU for the luminaire to be retrofitted.

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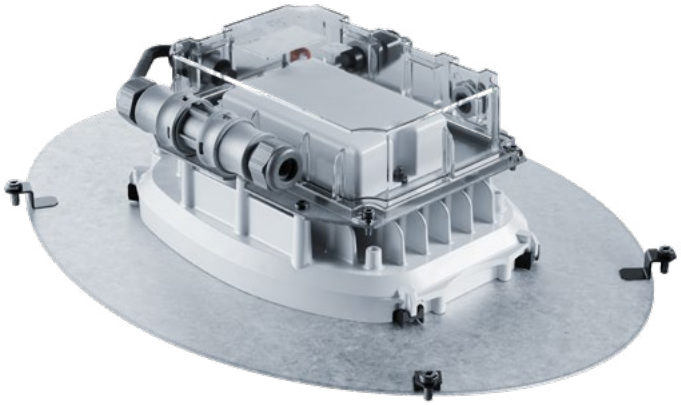
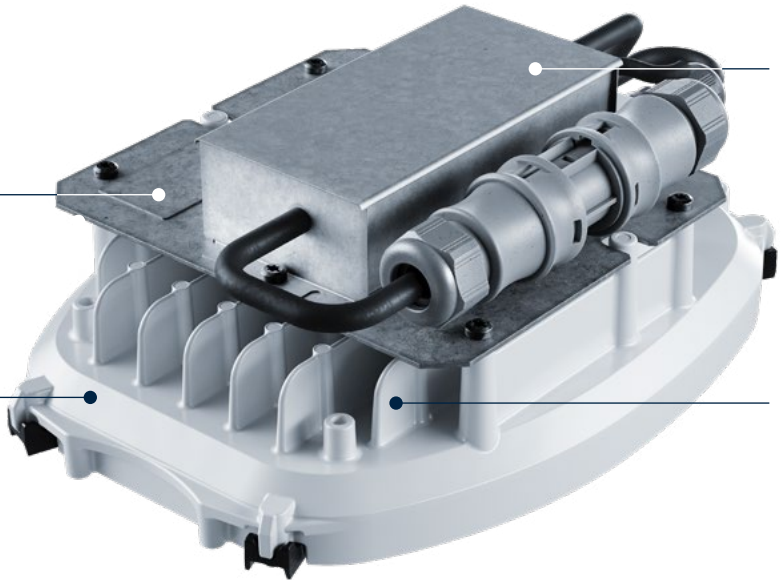


BASE VERSION



PLURIO RETROFIT KIT

COMPATIBLE WITH:

Plurio HID

Plurio is an iconic urban and residential post-top luminaire, with a simple yet distinctive design. The Plurio LED retrofit kits are designed to be simple to use and installer-friendly, minimising time and complexity during installation. They allow older High Intensity Discharge (HID) lamps to be upgraded to a high-performance LED engine for better optical performance, improved energy savings and a reduced carbon footprint. Replacing the light engine reduces waste in comparison to replacing an entire light fitting, further reducing the environmental impact. Choosing a replacement LED light engine with a warmer colour temperature also benefits wildlife and the surrounding ecosystem.

Colour temperature	2700 K / 3000 K
Luminous flux	2090 - 6390 lm
Lm/W	Up to 128 lm/W
IP rating*	IP66
IK rating*	IK08
Electrical class	Class II
Surge protection	6 kV

Upward light output ratio (ULOR)	0.4 % - 0.6 %
Optics	A-PEC: Rotational Symmetrical, Wide Street
Number of LEDs	18 LEDs
Lifetime rating	18L350/18L500/18L700: 100 000 h B10 L95 at 25 °C 18L1000: 75,000 h B10 L95 at 25 °C
Ta	-30 °C to 25 °C
CRI	70
Control options	Bi-Power BP3550 DALI

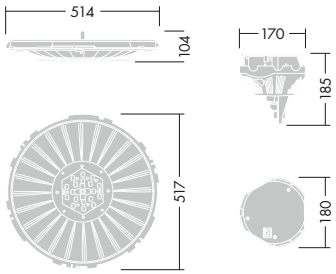
*Dependent on rating of existing fitting

Plurio HID			
HID	Power (W)	Efficiency (lm/W)	ULOR
50W	66	37 - 44	1.8 %
70W	96	32 - 45	1.3 %
100W	132	45 - 49	1.4 %

Plurio Retrofit 3000 K				
LED	Optic	Power (W)	Energy savings (W)	ULOR
18L350	RS	20	46	0.4 %
	WST	20	46	0.6 %
18L500	RS	28	68	0.4 %
	WST	28	68	0.6 %
18L700	RS	39	57	0.4 %
	WST	39	57	0.6 %
18L1000	RS	56	76	0.4 %
	WST	56	76	0.6 %

Plurio Retrofit 2700 K				
LED	Optic	Power (W)	Energy savings (W)	ULOR
18L350	RS	20	46	0.4 %
	WST	20	46	0.6 %
18L500	RS	28	68	0.4 %
	WST	28	68	0.6 %
18L700	RS	39	57	0.4 %
	WST	39	57	0.6 %
18L1000	RS	56	76	0.4 %
	WST	56	76	0.6 %

For details, refer to datasheet and mounting instructions



VICTOR & VICTORIA RETROFIT KIT

COMPATIBLE WITH:

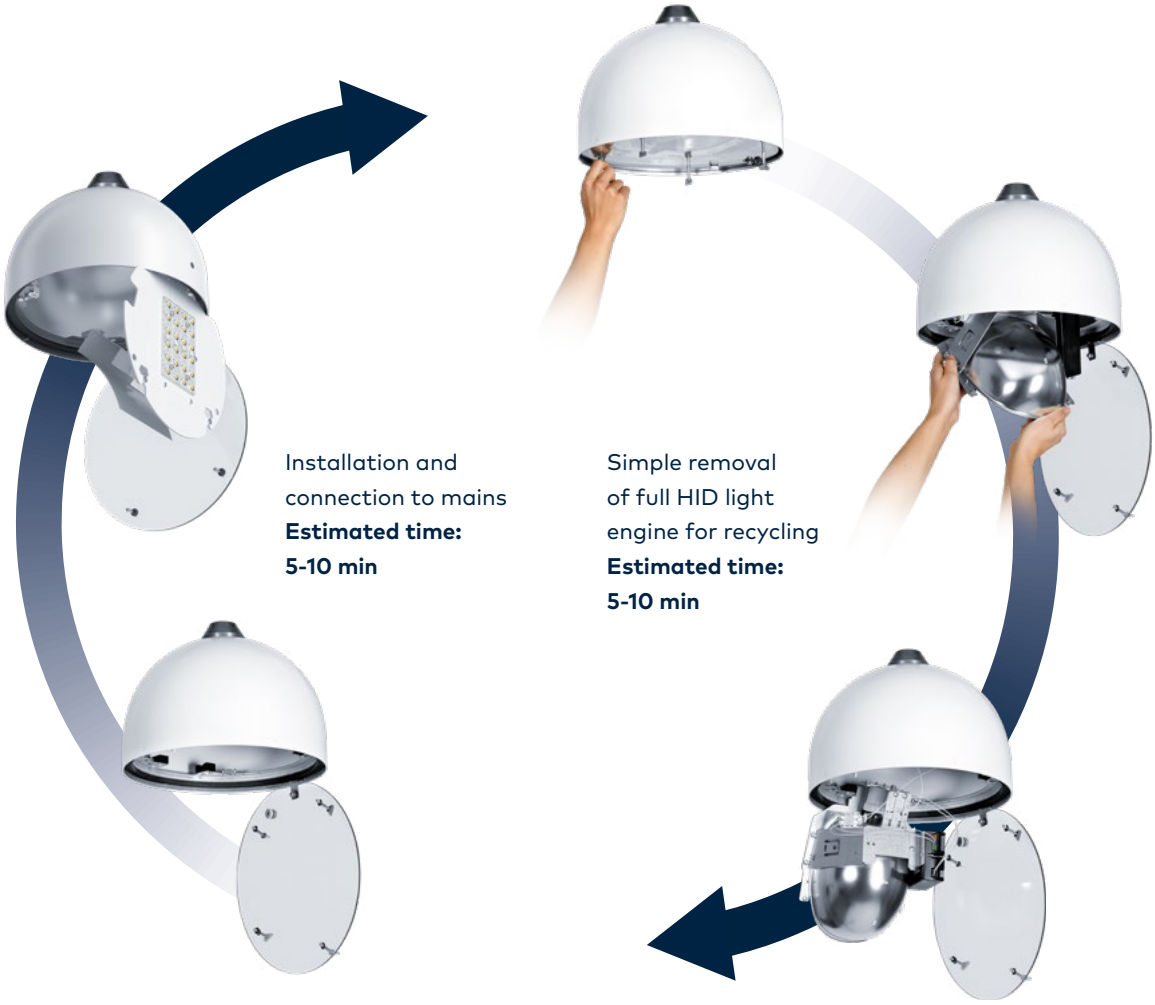
Victor HID, Victoria HID

With their popular and distinctive style, Thorn's Victor and Victoria luminaires are classics that are equally at home on major highways and urban roads and streets. Thorn's new refurbishment kits allow you to upgrade past generations of Victor and Victoria lanterns, HID and first-generation LED, to the newest LED technology for improved performance, the latest optical technology and greater energy efficiency – all while maintaining the existing, timeless aesthetic.

Colour temperature	2200 K / 2700 K / 3000 K / 4000 K	**Upward light output ratio (ULOR)**	0 %
Luminous flux	Size 1: up to 11,000 lm Size 2: up to 22,000 lm	**Optics**	R-PEC: Narrow Road, Wide Street, Extra-Wide Road, Extra Wide Street Comfort**
Lm/W	Size 1: up to 160 lm/W Size 2: up to 165 lm/W	**Number of LEDs**	Size 1: 12 / 24 / 36 LEDs Size 2: 48 / 60 / 72 LEDs
IP rating*	IP66	**Lifetime rating**	100 000 hours L95B10 at 25 °C
IK rating*	IK08	**Surge protection**	Up to 10 kV / 10kA multipulse
Electrical class	Class II	**CRI**	70 / 80

*Dependent on rating of existing fitting

**All other lighting distributions from R-PEC engine are available. Backlight shield available by request.



HID	Efficacy (lm/W)	High power LED equivalent	Recommended LED variant	Energy savings (approx.)
50 W	60	19 W	12 LEDs, 500 mA	60 %
70 W	65	30 W	24 LEDs, 500 mA	60 %
100 W	80	50 W	24 LEDs, 700 mA	50 %
150 W	85	75 W	48 LEDs, 500 mA	50 %
250 W	95	150 W	72 LEDs, 700 mA	35 %

GOTTHARD TUNNEL RETROFIT KIT

COMPATIBLE WITH:

Thorn Gotthard 7827 / 7830

Tunnel lighting uses large amounts of energy, and access for maintenance, such as lamp replacement, is often problematic and expensive. Converting from LED to HID provides significant energy savings and removes much of the cost and waste associated with lamp replacement. If tunnel luminaires are in good condition with a long remaining life, converting to LED is a good option. It allows for the use of existing tunnel cabling and mounting infrastructure, and also reuses the lantern bodies. Thorn tunnel retrofit solutions provide excellent thermal management and optical performance, ensuring that retrofit solutions are efficient and long lasting.

Colour temperature	4000K	**Threshold Increment (TI)**	Usually < 5 %
Luminous flux	3.000 – 40.000 lm	**Optics****	Counterbeam CB2 or bisymmetrical ASC
Lm/W	Up to 165 lm/W	**Number of LEDs**	24 to 96
IP rating*	IP65 required	**Lifetime rating**	100 000 hours L95B10 at 25 °C
IK rating*	IK08	**Surge protection**	Up to 10 kV / 10kA multipulse
Electrical class	Class I	**CRI**	70 / 80

*Dependent on rating of existing fitting

**Other lighting distributions are available with Thorn providing design support to identify the best option

Thorn tunnel retrofit kits are designed with a focus on quick and easy installation. Once the existing lamp and related components are removed, the kits are straightforward to secure and connect thanks to bespoke features designed to accommodate the structure of the original luminaire.

Kits are available for replacing both HID and fluorescent lamps. Other lamp technologies such as QL can also be catered for on request. Retrofit solutions can be provided for all tunnel lighting zones including access and exit zones as well as interior zones.

Thorn's tunnel retrofit solutions can be tailored to ensure compatibility with existing control systems, for an even smoother retrofit process.

HID	High power LED equivalent	Recommended LED variant	Energy savings (approx.)
70 W	26 W	24 LEDs, 350 mA	60 %
100 W	52 W	24 LEDs, 700 mA	50 %
150 W	71W	48 LEDs, 500 mA	50 %
250 W	94 W	96 LEDs, 330 mA	60 %
400 W	188 W	96 LEDs, 650 mA	50 %
Fluorescent	**High power LED equivalent**	**Recommended LED variant**	**Energy savings (approx.)**
58W	27W	48 LEDs 170 mA	50 %

QUALITY

Thorn Lighting's factories operate under high standards for manufacturing, quality and sustainability. Our factories have been certified to ISO9001 quality management, ISO 14001 environmental management and, at our flagship Spennymoor factory in the UK, ISO 50001:2018 energy management.

SUPERIOR MATERIALS FOR LONG-LASTING PERFORMANCE

Outdoor lighting fixtures are often subject to challenging environments. ISO 9223:2012 establishes a classification system for the corrosivity of various environments. Thorn's luminaires are tested extensively in our in-house testing facilities to be classified according to this system.

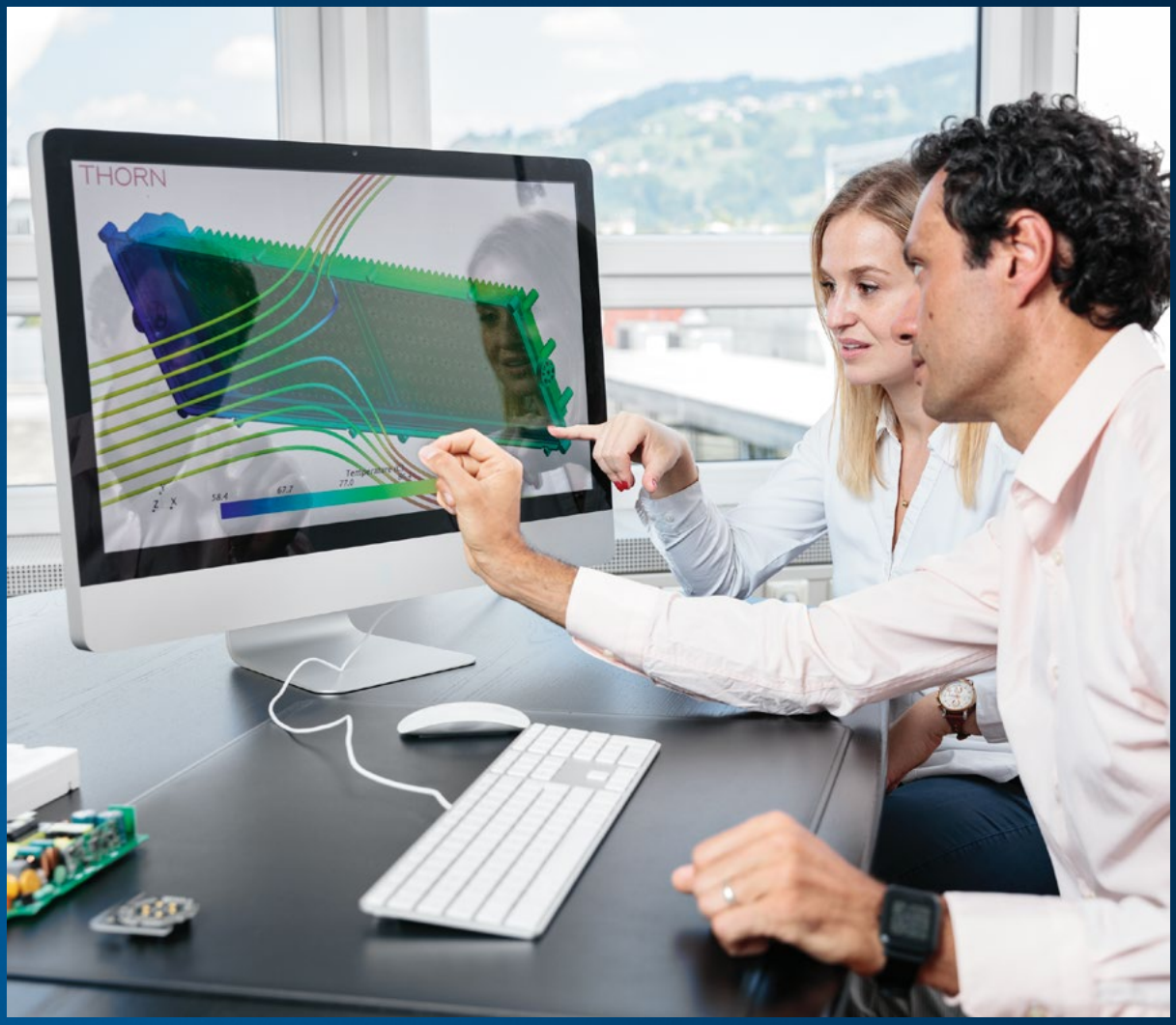
We use an EN AC-44300 certified aluminium alloy with an exceptionally low copper rate (<0.1 %) for all injected parts to limit the spread of any galvanic corrosion that could occur.

We also adopt a 9-stage pre-treatment process to produce the highest quality paint finish.

THERMAL OPTIMISATION AND RIGOROUS TESTING

In our dedicated testing labs, we ensure compliance to all relevant safety standards, including EN 60598-2, whilst ensuring reliable operability within environments with severe temperatures and extreme temperature ranges.

We perform thermal and fluid dynamic simulations to optimise the geometry of our products to guarantee safe operation and lifetime performance. All the components used in our fittings are rigorously tested to achieve these standards.



LED PERFORMANCE

Save energy with efficient optical systems and tailored lighting performance: Thorn's R-PEC and A-PEC light engines

The optical system of an outdoor luminaire must be designed to satisfy several criteria in terms of luminaire performance (P) and efficiency (E), visual comfort (C) and, of course, to respect the environment as well.

Consequently, we developed the R-PEC and the A-PEC LED optical systems, respectively for Road (R) and Amenity (A) lighting. The R-PEC optical system offers 24 different precision light distributions (including tunnel light distributions) designed for the highest efficiency, achieving wide column spacing and excellent uniformity, plus no waste or obtrusive light. The A-PEC optical system is dedicated to urban and residential areas and can be equipped with anti-glare filters and foils for even better visual comfort.

Our LED lenses are made from PMMA with additional glass cover protection. Giving impressive transparency and resistance to UV rays, PMMA ensures superb efficiency values for a long lifetime.

Useful lifetime: up to L98B10 @ 100,000 hours

NIGHTTUNE TECHNOLOGY

LET'S SET THE SCENE!

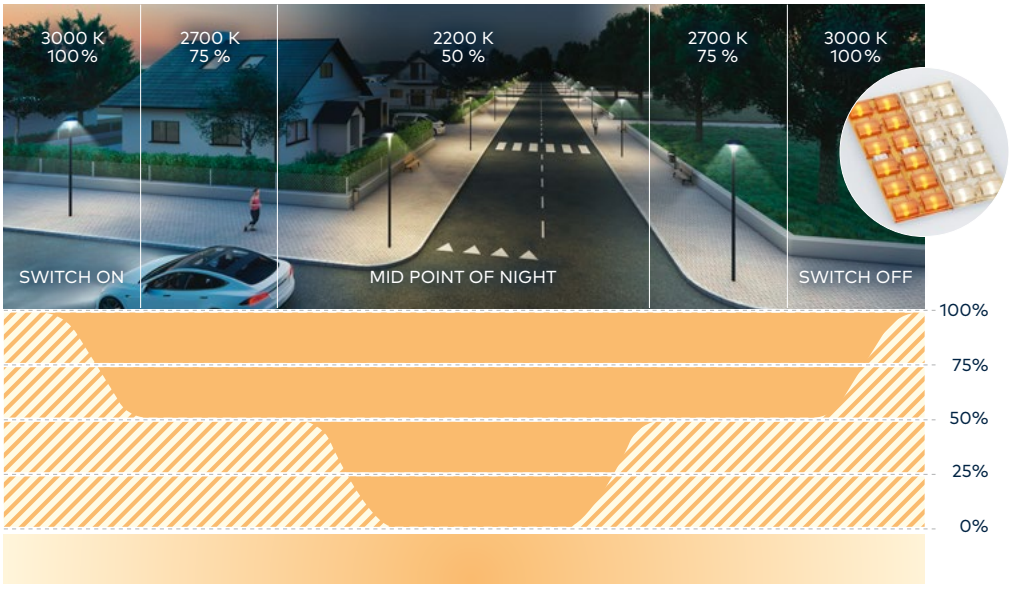
Put simply, NightTune is a system that automatically adjusts the level of light emitted by a light fitting, and its colour temperature, to suit the exact time of night, level of traffic and is commissioned to suit specific project and application needs.

Imagine a normal night. In the evening, pedestrians and cyclists are still using footpaths and walkways. Here NightTune can provide a moderate colour temperature. Then, during the middle of the night when there are fewer people using those same footpaths and walkways, the output of the neutral LEDs is reduced so that the light becomes dimmer and warmer. As morning approaches and pedestrian and cycle traffic returns to the streets, the output of the neutral LEDs increases once again, to provide brighter, cooler light that meets the higher safety demands.

NightTune works by dimming and mixing light from 2200K to a moderate 3000K via two independent groups of LEDs.

NightTune intelligently balances the nocturnal lighting needs for humans as well as local flora and fauna.

By combining advanced technologies, you're able to balance the night time illumination needs of a community.



Use case example

2200 K	Channel 1: Always at 100%
3000 K	Channel 2: Dimming
2200 K 2700 K	Result: Changing colour temp and luminous flux adj

GET IN TOUCH

www.thornlighting.com/contact

5 YEAR GUARANTEE

As a globally leading luminaire manufacturer, Thorn Lighting provides a five-year warranty for its complete product range within all European Countries.
thornlighting.com/guarantee

08/2025 (INT)

WE MAKE LIGHT WORK