

**THORN**  
LIGHTING



# CARAT

Durable performance at the service of timeless elegance

# HIGHEST QUALITY OF LIGHT WITH ENDURING AND ECOLOGICAL DESIGN

Carat is the best in class for efficacy, using the most efficient LED on the market. With an extremely long service life this product has not only been designed, manufactured and packaged to have the lowest environmental impact possible, it also has an outstanding useful economic life and sustainable end of life qualities.



Roads



Urban &  
Residential Streets



Building  
surrounds



Pedestrian areas &  
cycle paths



Parkings



Transportation



## DARK SKY ACCREDITATION

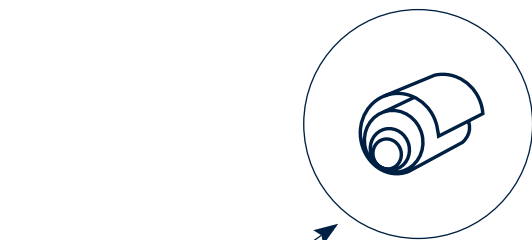
The International Dark Sky Association is recognised as the global authority on light pollution and is the leading organisation combating this issue worldwide.

The IDA Fixture Seal of Approval is a highly regarded accreditation for manufacturers. The process to achieve this accreditation reviews key features and benefits of a luminaire, its fundamental design and deep dive analysis of photometric data to ensure the product meets strict requirements to limit light pollution.



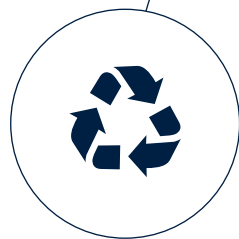
# HIGH QUALITY MATERIALS FOR OPTIMUM DURABILITY

HIGHEST EFFICIENCY MADE TO SUSTAIN



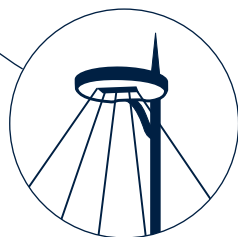
## RAW MATERIALS

- The choice of structural materials plays a vital role in preventing corrosion and reducing the structural weight (EN AC-44300 aluminium)
- Plastic parts are clustered in PMMA, giving impressive transparency, and resistance to UV rays



## RECYCLABILITY

- All components can be dismantled
- High recyclability rate: 88 %



## USE-STAGE

- Efficient, using the latest generation of efficient LEDs
- Flexible due to configurability of the product
- Maintainable
- Smart-ready luminaire



Carat is designed to withstand the test of time. This incredibly durable luminaire is made from the absolute best quality materials. An EN AC-44300 aluminium casting forms the body, with a coastal treatment as standard. This, in combination with zinc treated stainless steel screws, achieves the C5 corrosion class, in-line with EN ISO 9223.

Also, the high impact protection rating (IK10), the ingress protection rating (IP66) and the protection against high electrical surges make Carat reliably durable.

Carat has been designed as a luminaire which is simple to get its components upgraded and therefore offers a long service life. It is also easy to install thanks to its low weight.



#### PRODUCT DESIGN

- Every purpose-built component is configured to work together to deliver thermal, mechanical, optical, and electrical performance



#### MANUFACTURING

- All components can be dismantled for rework if required
- Organic paint is used for the printed glass
- Designed in France and assembled in Europe
- Localised supply of components reduces the carbon impact caused by transport



#### TRANSPORT

- Reduced quantity of cardboard used
- Only recyclable cardboard used

# ADJUSTABLE DESIGN

## AND UNOBTRUSIVE LIGHTING PERFORMANCE

Carat is available in two sizes and has a high efficacy of up to 165 lm/W making it suitable for road lighting, residential areas, parkings, transportation areas and cycle paths.

The range comes with our own developed R-PEC optic system and a choice of 26 light distributions to provide accurate lighting solutions and to achieve great light efficiency along urban streets. Its optical accuracy also means the ULOR is 0 %, meaning no light pollution is produced upwards into the sky.

With its ULOR of 0 % and warm colour temperatures, Carat meets the product requirements of the documents CIE 150 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations and the Institution of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light within rural, urban and commercial areas, namely ULOR < 2.5 %. In addition, the available colour temperatures of less than or equal to 3000 K meet additional local authority product requirements.



# REFINEMENT FOR THE URBAN LANDSCAPE

Carat is complemented by a dedicated range of decorative brackets to provide stylish solutions in multiple configurations. The bracket choice includes single, double, multiple (two size lanterns on the same mast), wall and side variants to meet the requirements of your applications. Carat's spigot can be reversed and used as post-top or as a lateral mounted option, with different available diameters, and also consoles are available for the suspended version.



Lateral



Post-top

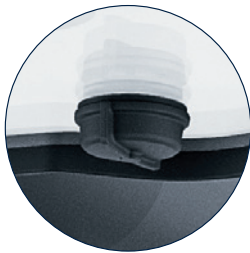


Suspended



Wall

# ENVIRONMENTALLY RESPECTFUL IN 3 STEPS



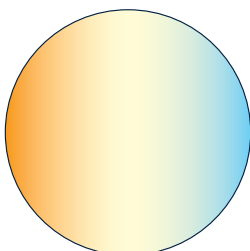
## 1 CONTROL

Excessive light is not only a waste of energy, but it can be a source of pollution leading to a range of negative effects on the natural environment and ecosystem. Variable Light Distribution programming can significantly reduce the risk of pollution. Control systems adjust light levels based on time of day or night and detect the presence of people or vehicles. Carat can be equipped with the latest control technologies using NEMA and Zhaga compliant components, meeting ZD4i certification, or other advanced controls, to reduce light pollution and save energy.



## 2 SHIELD

Carat's optical system is designed for ULOR at 0 % so that light is not emitted upwards into the sky. It can also have an additional internal louvre that ensures a perfect cut-off. This feature minimises spill light and avoids obtrusive light towards buildings.



## 3 COLOUR TEMPERATURE

Warm colour temperatures (up to 3000 K) minimise disruption to the nocturnal ecosystem and create a comfortable atmosphere. Carat has been equipped with our latest NightTune and Variable Light Distribution technologies, designed to create the perfect balance of lighting the night.



## NIGHTTUNE TECHNOLOGY



NightTune creates the perfect balance in lighting at night. It gives a sense of security and wellbeing for people whilst conserving energy and protecting ecosystems. NightTune automatically adjusts the level of light emitted from a light fitting, mixing dimmable light from warm and cool LEDs. Cooler LEDs dim when night falls and increase when traffic levels rise in the morning, leaving warmer LEDs on throughout the night.

## VARIABLE LIGHT DISTRIBUTION



Thorn Variable Light Distribution adapts both its performance and ambience to each project configuration.

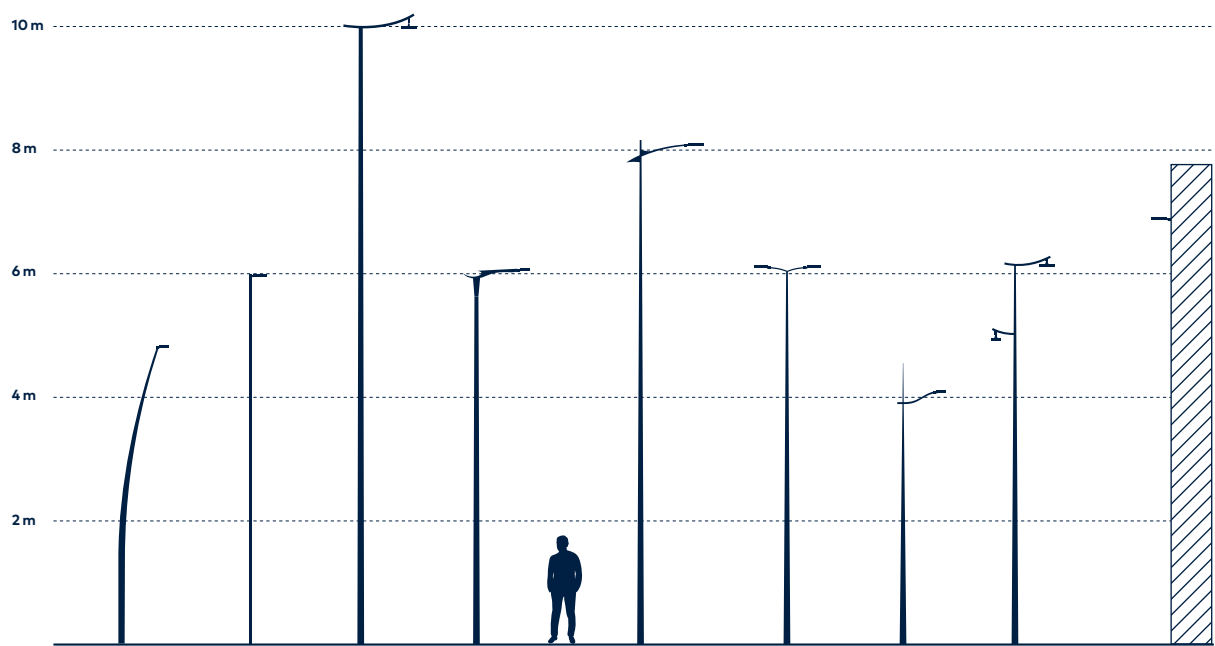
By mixing 2 lighting distributions and 2 colour temperatures into one luminaire, the Variable Light Distribution optimizes the comfort and security for each user in one common area, should they be pedestrians, cyclists or motorists. It delivers the most appropriate lighting level

and colour depending on where the user actually needs it. Adding a sensor into the lantern also enables optimisation of energy use as it will then only light the required area when necessary.

NightTune, our Variable Lighting Distribution and detection sensors can be used together to create different lighting scenarios that protect the environment, support visual comfort and increase safety.

# INSTALLATION POSSIBILITIES

- Carat is available in 2 sizes and it can be installed at various heights and with different mountings
- Choice of mountings: post-top, lateral, suspended
- Universal spigot for lateral and post top installation with a choice of tilting (lateral:  $-20^{\circ}/0^{\circ}$  and post top:  $0^{\circ}/+15^{\circ}$ )
- Light weight for ease of handling
- Pre-wired for ease of installation
- Recommended height for the small luminaire is 3 to 6 m, recommended height for the large luminaire is 6 to 10 m
- Additional features available for comfort and wellbeing in urban and residential streets, city centres, pedestrian and cycle paths, parks and promenades



Please contact your regional pole supplier for more details and to understand the available possibilities for your country.

DISCOVER

# CARAT

\*IDA fixture seal of approval relates to <= 3000K only, clear enclosures, +/- 10° maximum tilt only. Luminaires must be mounted as photometered.



SIZE SMALL

SIZE LARGE

	Environmentally friendly luminaire	
	12 LEDs / 24 LEDs / 36 LEDs	36 LEDs / 48 LEDs / 60 LEDs
	Up to 12 000 lm	Up to 20 000 lm
	Up to 165 lm/W (740) Up to 150 lm/W (730)	Up to 165 lm/W (740) Up to 150 lm/W (730)
	0%	
	2200 K / 2400 K / 2700 K / 3000 K / 4000 K / NightTune (2200 – 4000 K) / Variable Light Distribution (VM: 2200 – 4000 K / VS: 2200 – 3000 K)	
	70 / 80	
	IP66	
	-35 to 50 °C	
	Up to IK10	
	Housing and spigot corrosion resistant (Class 5 – Very High)	
	UV Resistant	
	100 000 h L90 Ta 25°C and 50°C	
	R-PEC optical system with a choice of 26 light distributions	
	Post top / Lateral / Suspended (T60, T76, L42, L60, MSU, MSUL)	
	Texturized anthracite and 60 additional RAL colours	
	10 kV multi-pulse / 20 kV single pulse	
	DALI dimmable (HFX) / Bi-Power Power Line (BPL) / Constant Light Output (CLO) / Light Reduction Twin Phases (LRT) / Bi-Power (BP) / Zhaga interface Up, Down, Up and Down (ZU, ZD, ZUD) / Multi-Layers Dimming Scenario 1 (MLD1 with NightTune)	

# CONFIGURATION GUIDE

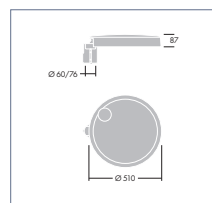
thornlighting.com/CARA

## LUMINAIRE

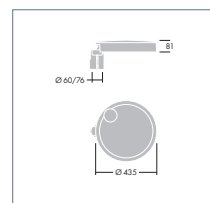
CT	S	12L	35	730	NR	CLO	BP5350	HFX			SP	ZU	CL2		WS6	T60	ANT
Range	Size	LED	mA	CCT/CRI	Optic	CLO	Bi-Power	DALI	Impact Protection	Internal Louvre	Surge Protection	Controls	Safety	Temperature	Wiring	Mounting	Colour
																	<b>ANT</b> Texturized anthracite <b>ANT-S</b> Texturized anthracite – Spigot not painted <b>BK</b> Texturized black <b>GY</b> Texturized light grey <b>Rxxxx</b> Different RAL possibilities <b>MSU</b> Suspended mounting <b>MSUL</b> Suspended mounting – Long <b>L42</b> Lateral mounting Ø42 mm <b>L60</b> Lateral mounting Ø60 mm <b>T60</b> Post top mounting Ø60 mm <b>T76</b> Post top mounting Ø76 mm Optional <b>DSx</b> Pre-wired, 3 – 12 m, 1.5 mm², for DACH market <b>USx</b> Pre-wired, 3 – 12 m, 1.5 mm², Arctic blue for UK market <b>WSx</b> Pre-wired 1 - 12m, 1.5mm², HO7RNF <b>WTx</b> Pre-wired, 3 – 12 m, 2.5 mm², HO7RNF Optional <b>MT</b> Medium ambient temperature >35 °C <b>CL1</b> Class I electrical (earthed) <b>CL2</b> Class II electrical (double insulated) Optional <b>N7</b> Integral NEMA socket – 7 pin <b>PM</b> Integral mini photocell <b>ZD</b> Zhaga socket down <b>ZU</b> Zhaga socket up <b>ZUD</b> Zhaga socket up & down Optional <b>SP</b> 10 kV multi pulse surge protection Optional (R-PEC only) <b>LV</b> Internal Louvre Optional <b>IK</b> IK10 Optional <b>HFX</b> DALI2 Optional <b>BPxxxx</b> Bi-Power: x-hours before midnight, x-hours after midnight, xx-dimming percentage <b>BPL</b> Bi-Power Power Line <b>LRT</b> Light Reduction Twin Phases <b>MLD1</b> Multi-Layers Dimming scenario 1: 100%, 2h 75%, 5h 50%, 2h 75%, 100% (available only with 722-40 / 722-30) Optional <b>CLO</b> Constant Light Output <b>NR</b> Narrow Road ... R-PEC optical system with a choice of 26 light distributions <b>722-40</b> CRI70 2200K – 4000K* <b>722-30</b> CRI70 2200K – 3000K** <b>722</b> CRI70 2200K <b>724</b> CRI70 2400K <b>727</b> CRI70 2700K <b>730</b> CRI70 3000K <b>740</b> CRI70 4000K <b>827</b> CRI80 2700K <b>830</b> CRI80 3000K <b>840</b> CRI80 4000K 250 to 1050 From 250 mA to 1050 mA <b>12L</b> 12 LEDs <b>24L</b> 24 LEDs <b>36L</b> 36 LEDs <b>48L</b> 48 LEDs <b>60L</b> 60 LEDs <b>S</b> Small <b>L</b> Large <b>CT</b> Carat

Configure the ideal product solution with myProduct. The myProduct configurator allows you to easily configure a luminaire according to your needs.  
**Try it now at [www.thornlighting.com/myproduct](http://www.thornlighting.com/myproduct)**

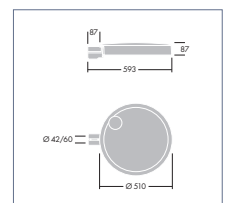
\* Available for NightTune and Variable Light Distribution (only with VM light distribution)  
 \*\* Available for Variable Light Distribution (only with VS light distribution)



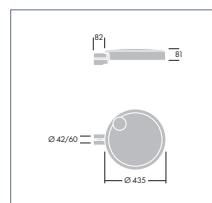
**CARAT L POST-TOP**  
**Ø 60 & Ø 76**



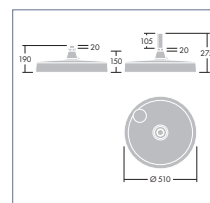
**CARAT S POST-TOP**  
**Ø 60 & Ø 76**



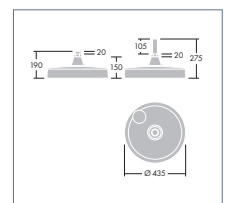
**CARAT L LATERAL**  
**Ø 42 & Ø 60**



**CARAT S LATERAL**  
**Ø 42 & Ø 60**



**CARAT L SUSPENDED**



**CARAT S SUSPENDED**



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](http://thornlighting.com/guarantee)

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.  
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**WE  
 MAKE  
 LIGHT  
 WORK**