

# D A R K S K Y

Application Guide

**selux**





## DarkSky Association

DarkSky International is the recognized authority on light pollution and the leading organization combating light pollution worldwide. The DarkSky International mission is to preserve and protect the nighttime environment and the heritage of dark skies through environmentally responsible outdoor lighting.

## Why is DarkSky Important?

Taking responsibility for the environment through thoughtful lighting and luminaire design is important. Selux strongly believes in preserving the heritage of dark skies. By doing this, we can minimize the impact on wildlife, reduce energy usage, and maintain dark skies for astronomical recreation and research.

## DarkSky Approved Program / Approval Seal

The DarkSky Approved program/DarkSky Approval Seal provides objective, third-party certification for luminaires that minimize glare, reduce light trespass, and don't pollute the night sky.

Selux offers a variety of luminaire types that are approved and carry the DarkSky Approval Seal.

To achieve this Approval Seal, luminaires must be fully shielded and not allow any light above horizontal, must be fixed to prohibit tilting of the luminaire, and correlated color temperatures (CCT) must be 3000K or warmer.







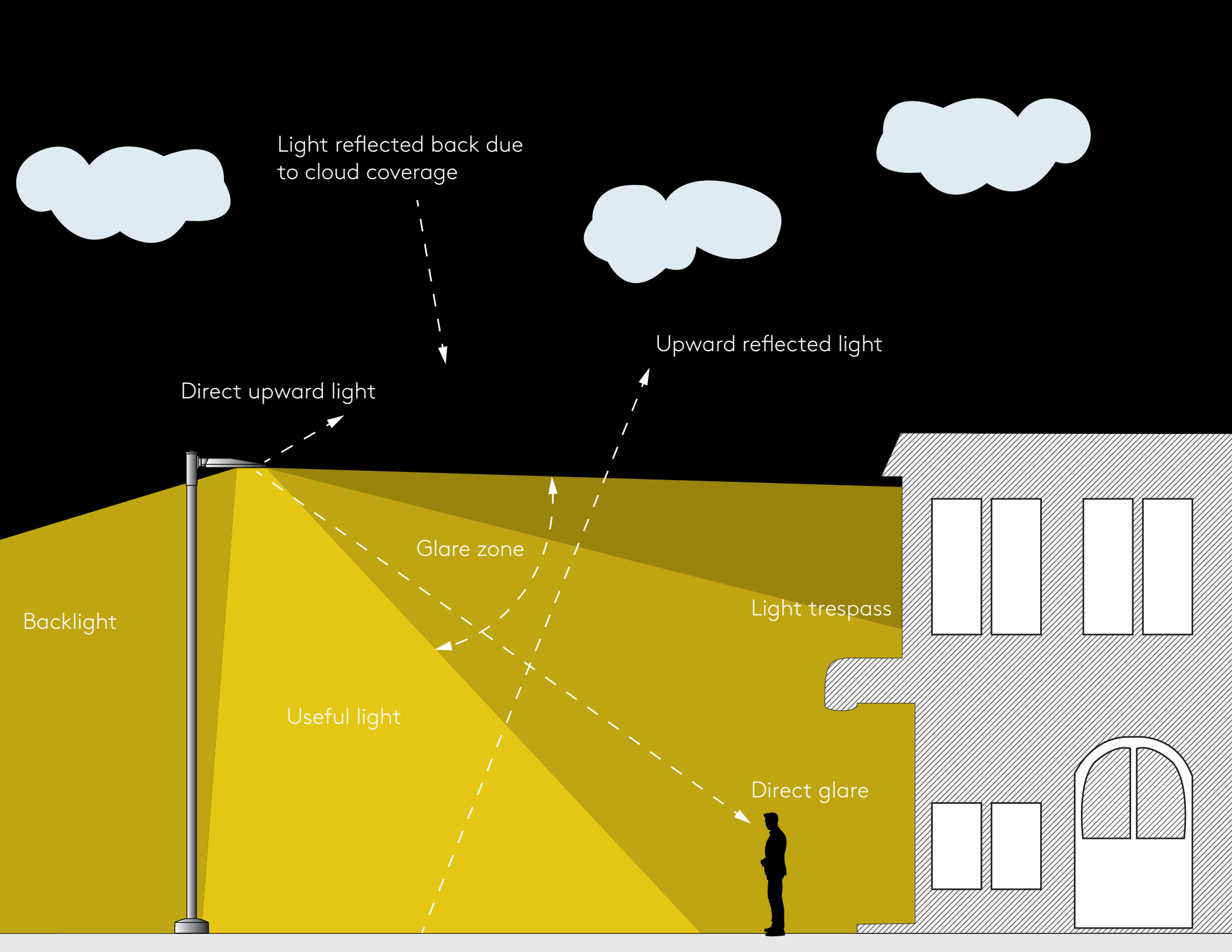
# What is Light Pollution?

Per the International DarkSky Associates, light pollution is the inappropriate or excessive use of electric light, and it can have serious environmental consequences for humans, wildlife, and our climate. Components of light pollution include glare, sky glow, light trespass, and clutter.

<b>Glare:</b>	excessive brightness that causes visual discomfort
<b>Sky glow:</b>	brightening of the night sky over inhabited areas
<b>Light Trespass:</b>	light falling where it is not intended or needed
<b>Clutter:</b>	bright, confusing, and excessive groupings of light sources







Light reflected back due to cloud coverage

Upward reflected light

Direct upward light

Glare zone

Light trespass

Backlight

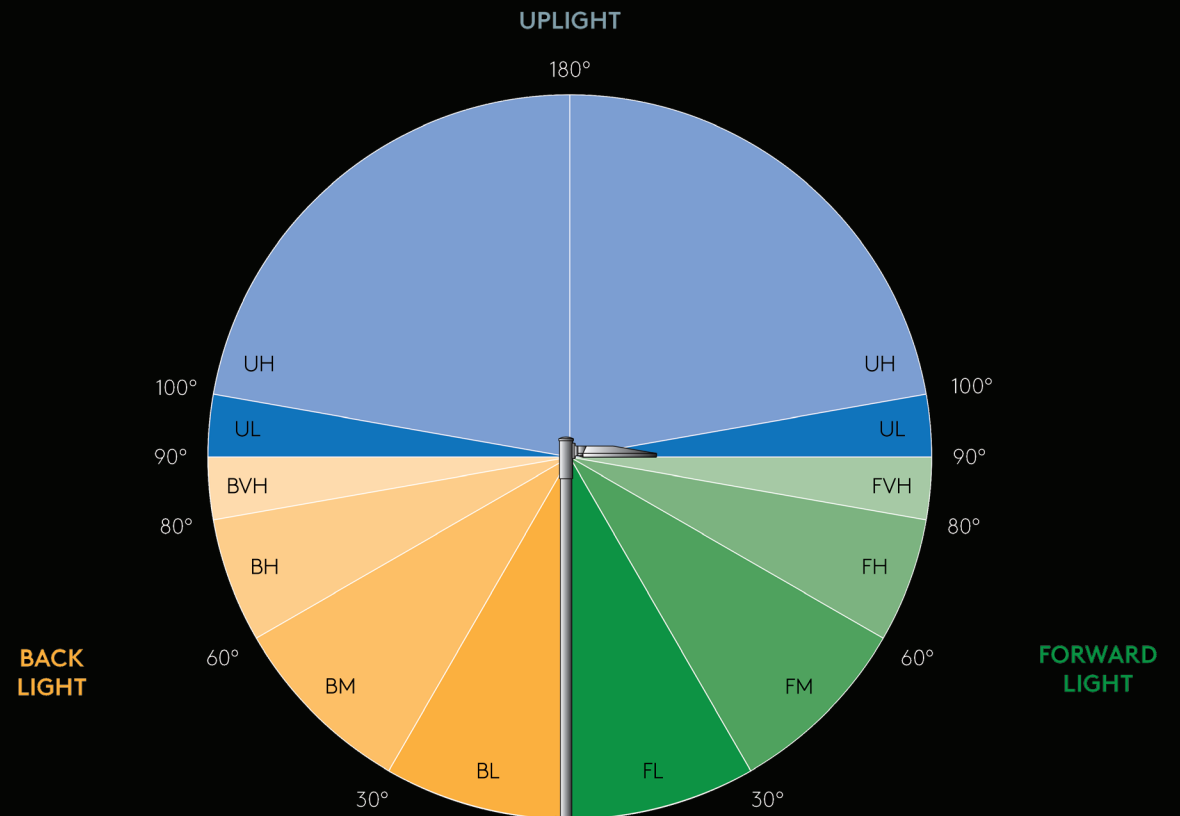
Useful light

Direct glare



## BUG Rating

DarkSky International and the Illuminating Engineering Society of North America (IES) have developed a Model Lighting Ordinance to address the need for strong, consistent outdoor lighting regulation in North America. The IES's TM-15-11 "BUG" (Backlight, Uplight, and Glare) classification of outdoor lighting fixtures is used to ensure that only well-shielded luminaires are used. To be considered DarkSky, there can be no uplight for areas or street lighting in any zone. Many luminaires from Selux have an uplight rating of U0.





# DarkSky Luminaires

DarkSky International approves outdoor luminaires that meet electrical safety standards and their guidelines for reducing light pollution. To receive DarkSky approval, manufacturers must provide all required documentation demonstrating conformance. Approved luminaires are then categorized accordingly.

## Residential Luminaires

Outdoor lighting fixtures that are commonly used in single-family homes, duplexes, triplexes, and townhouses.



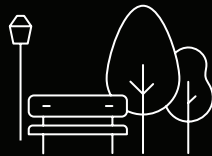
## Commercial Luminaires

Outdoor luminaires that are used in a variety of high-traffic settings, including commercial and industrial properties, schools, hotels, shopping malls, public spaces, streets, roadways, and government facilities.



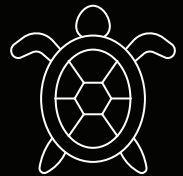
## DarkSky Pedestrian Luminaires

Outdoor luminaires with lower lumens are commonly installed in pedestrian walkways and local streets. They must adhere to restrictions on light output, uplight, and high-angle emissions for fixtures over 1.2 meters high to reduce obtrusive light, prevent light trespass, and enhance visual comfort. Typically, these luminaires are spaced no more than six mounting heights apart.



## DarkSky Wildlife Tuned Luminaires

Luminaires with shielding and color spectra designed to protect the habitats of specific species, such as sea turtles.



## Commercial Luminaire Criteria

In the lighting guidelines provided by DarkSky, specific rules are outlined for the maximum allowed lumens in zones and angles above nadir. For luminaires emitting 1,000 lumens or less, a maximum of 5 lumens total is permitted, while those emitting more than 1,000 lumens are limited to 0.5% of the total lumen output, up to a maximum of 50 lumens. Additionally, restrictions on high angle light lumens vary based on light

distribution type, with Type V or Type VS limited to 5% and others to 3%. Pole-mounted luminaires must offer a shielding option, and the correlated color temperature (CCT) should not exceed 3000K. Dimming capability to 10% or less of full light output rating is also required.





# Pedestrian Luminaire Criteria

Output should not exceed 10,000 lumens. No light should be emitted between 90 and 180 degrees above nadir. High Angle Light must adhere to specific percentages for different zones, with a maximum of 2% between 80-90 degrees, 35% between 60-80 degrees, and a maximum vertical angle of 68 degrees above nadir. CCT should not exceed 3000K, and dimming should be possible to 10% or less of full output.



— INULA BOLLARD



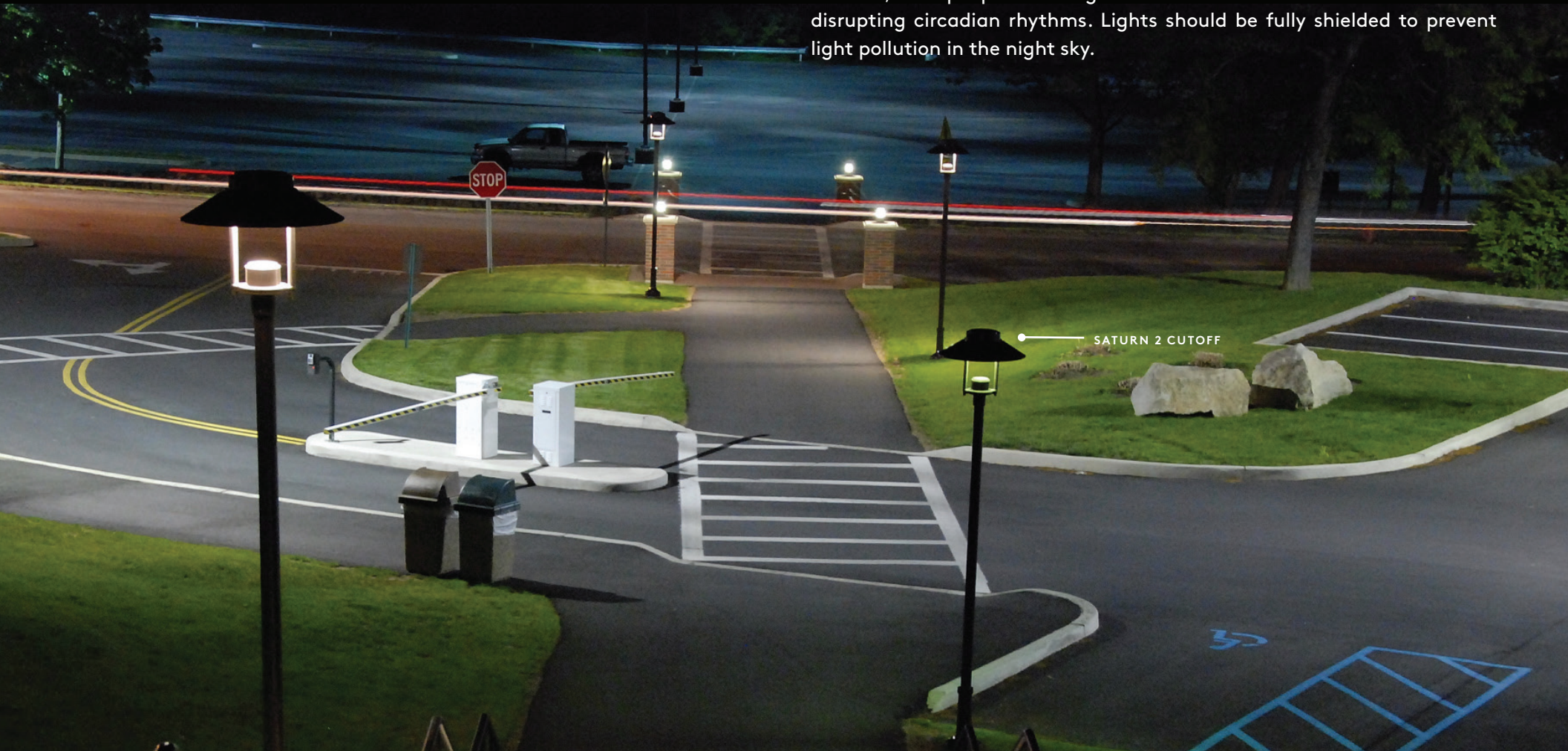


Certified by DarkSky.org

## DarkSky Approved Program / DarkSky Approval Seal

Fixtures that meet the DarkSky Approved Program's requirements are awarded the DarkSky Approval Seal, making it easy to distinguish them from lighting products that are not suitable.

Controlled lighting should only be active when necessary to save energy. Fixtures should include automatic time controls. Light should only illuminate the required area to conserve energy and avoid light trespass. Brightness should be minimized to save energy and protect plants, animals, and people. Blue light emissions should be reduced to avoid disrupting circadian rhythms. Lights should be fully shielded to prevent light pollution in the night sky.







ARCA PRO





## Selux mission for dark skies

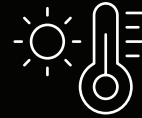
The Selux mission is to develop energy-efficient, sustainable outdoor lighting solutions that reduce light pollution and protect the natural nighttime environment. For years, we have provided lighting that delivers energy savings, economic benefits, a more pleasant nighttime ambience, and conservation of wildlife, ecosystems, and astronomy.



Advanced Optical  
Design



Low Glare  
Technology



Warm Color  
Temperatures



Zero Uplight



Electric light can impede the molecular processes responsible for the butterfly's remarkable navigational ability and trigger the butterfly to take wing when it should be resting. Selux Inula and Melli direct light downward, reducing glare and keeping the sky darker.



## Melli

Light Engine:	Gen5 · Spot
Distributions:	Type I · Type II · Type III · Type IV · Type V Round
Optics:	Short Clear · Long Clear · Spot 9° · Spot 20° · Spot 40° · Spot 80°
Output:	Gen5 up to 3,254lm · Spot up to 2,908lm
CCT:	2700K · 3000K
Mounting:	Surface · Wall · Catenary · Rigid Stem · Single Pole Mount · Double Pole Mount
Optical Accessories:	House-side Shield

## Inula

Series:	Inula Column · Inula Bollard · Inula SteelCore Bollard
Light Engine:	High-power LED
Distributions:	1Q · 2Q90 · 2Q90MU (bollard only) · 2Q180 · 3Q · 4QS · 4QD
Output:	Bollard 2,246lm · Column 4,320lm
CCT:	Amber · 2700K · 3000K
Mounting:	Column · Bollard · SteelCore Certified to ASTM Standard F2656 (C40-P1) $\approx$ 3.3' penetration for 2,430lb Small Passenger Car traveling at 40mph
Optical Accessories:	Choice of 1-3 Stack Light Modules (column only)



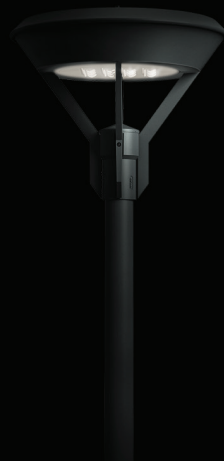


As many frog species are nocturnal, they are especially susceptible to harm from light pollution. Scientists have also discovered that electric light influences the mating call of many species of tree frogs. In areas that are highly lit, male tree frogs stop or lessen their mating call. Selux Ouray™ and Quadro H2 focus light only where it is needed, eliminating wasted light and lowering energy consumption.



## Ouray™

Series:	Ouray 400 · Ouray 500 · Ouray 600 · Ouray Sistema
Light Engine:	Gen5
Distributions:	Type I · Type II · Type III · Type III Wide · Type IV · Type V Round · Type V Square · Type V Rectangular
Output:	Ouray 400 up to 6,120lm · Ouray 500 up to 15,307lm · Ouray 600 up to 25,707lm
CCT:	2700K · 3000K
Mounting:	Wall · Short Arm · Long Arm · Single Pole Mount · Double Pole Mount · Sistema
Optical Accessories:	House-side Shield



## Quadro H2

Light Engine:	Gen5
Distributions:	Type I · Type II · Type III · Type IV · Type V Round · Type V Square
Output:	Up to 3,254lm nominal · up to 1,161lm
CCT:	2700K · 3000K
Mounting:	Single Pole Mount · Double Pole Mount
Optical Accessories:	House-side Shield



Animals such as cats, owls, and rodents have developed keen hearing, smell, and dark-adapted vision in order to navigate at night. By protecting night skies, we protect more than pretty views of the stars. Selux Saturn Cutoff and Mistella® minimize light trespass or any light that shines beyond the boundary of where it is needed - protecting nocturnal wildlife and reducing the carbon footprint.



## Saturn Cutoff LED

Series:	Saturn Cutoff LED · Saturn Cutoff LED 2
Light Engine:	Gen5
Distributions:	Type I · Type II · Type III · Type IV · Type V Round · Type V Square · Type V Rectangular
Output:	Saturn Cutoff up to 9,241lm · Saturn Cutoff 2 up to 9,101lm
CCT:	2700K · 3000K
Mounting:	Single · Single Arm Mount · Double · Wall Mount
Optical Accessories:	House-side Shield

## Mistella®

Light Engine:	Gen5
Distributions:	Type I · Type II · Type III · Type III Wide · Type IV · Type V Round · Type V Square · Type V Rectangular · Diffused Flat Glass
Output:	Comfort up to 9,544lm · Technical up to 11,636lm
CCT:	2700K · 3000K
Mounting:	Single · Double · Wall
Optical Accessories:	House-side Shield · Diffused Flat Glass · Rotate optics left or right



Bees, squirrels, songbirds, and even humans are mostly diurnal (some bee species are nocturnal), meaning that they are typically awake during the day, and sleep at night. Research is showing that electric light at night results in disrupting these animal's day and night patterns. Selux provides lighting that is fully shielded and emits no light above the horizontal plane, protecting wildlife.



## Astro

Series:	Astro 1 · Astro 2
Light Engine:	High Flux LEDs
Distributions:	Type I · Type II · Type III · Type III Wide · Type IV · Type V Round · Type V Square · Type V Rectangle
Output:	Astro 1 up to 11,030lm · Astro 2 up to 11,030lm
CCT:	2700K · 3000K
Mounting:	Single · Single Arm · Double Arm · Wall

## Olivio

Sizes:	Medio · Piccolo · Grande
Light Engine:	COB LED
Distributions:	Spot 9° · Spot 20° · Flood Medium 41° · Flood 78° Asymmetric
Output:	Up to 1,346lm
CCT:	2700K · 3000K
Mounting:	Bollard · Pole (Candelabra, Sistema, Sistema 2, Floracion) · Wall · Solar





Turtle-friendly lighting is crucial because hatchling sea turtles instinctively crawl towards the water, following the natural light reflected off the ocean by the moon. However, the presence of bright white electric lights near the shoreline can overpower the moon's glow, causing the hatchlings to become disoriented and stray from their path to the water. Selux Arca Pro offers amber lighting that produces a warm, soft glow, creating a less disruptive environment that allows hatchlings to safely navigate to the sea.



## Avanza

Series:	Avanza 450 · Avanza 600 · Avanza Solar
Light Engine:	Cross beam technology
Distributions:	Type III Wide · Type III Narrow · Type V
Output:	Avanza 450 up to 5,332lm · Avanza 600 up to 9,555lm
CCT:	2700K · 3000K
Mounting:	Single or Double Short Arm · Single or Double Long Arm · Short or Long Arm Wall · Solar



## Arca and Arca Pro

Series	Arca · Arca Pro
Light Engine:	Gen5
Distributions:	Type I · Type II · Type III · Type IV · Type V Round · Type V Square
Cylinder:	Short Clear · Long Clear
Output:	Arca up to 9,900lm · Arca Pro up to 26,000lm
CCT:	2700K · 3000K
Mounting:	Wall · Single Pole Mount · Double Pole Mount · Sistema
Optical Accessories:	House-side Shield



Bright lights can lure large numbers of night-migrating birds from up to 5 kilometers away. Drawn to these illuminated areas, the birds can become trapped, circling endlessly and depleting the energy reserves they need for migration. This can even lead to collisions with nearby buildings and infrastructure. In contrast, lighting systems like Selux Beta and Discera direct their illumination downward, improving visibility on the ground while reducing the overall number of lights required to sufficiently light a specific area.



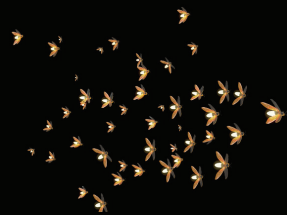
## Beta

Series:	Beta Lantern · Beta Pendant
Light Engine:	Gen5
Distributions:	Type I · Type II · Type III · Type IV · Type V Round · Type V Square
Output:	Up to 3,254lm · Nominal up to 116lm/W
CCT:	2700K · 3000K
Mounting:	Single · Double Cluster · Triple Cluster · Quadruple Cluster · Wall · Pendant
Optical Accessories:	House-side Shield

## Discera

Series:	Discera 4 · Discera 6 · Solar · Catenary
Light Engine:	Gen5 · Comfort
Distributions:	Type I · Type II · Type III · Type III Wide · Type IV · Type V Round · Comfort nominal
Output:	Discera 4 Comfort nominal · Discera 4 Technical up to 7,548lm · Discera 4 Catenary up to 7,548lm · Discera 6 up to 13,403lm
CCT:	2700K · 3000K
Mounting:	Single and Short Wall · Catenary · Single Short and Long Pole Mount · Double Short and Long Pole Mount · Citalys · Solar
Optical Accessories:	House-side Shield





Fireflies use light signals to communicate with each other and protect themselves, but electric lights can interfere with this process. Different colors of electric light can significantly affect the courtship signals of fireflies. Selux DarkSky Approved lighting provides a warm comfortable light that doesn't disturb their natural habitat.



## Exelia

Light Engine:	Gen5
Distributions:	Type I · Type II · Type III · Type IV · Type V Round · Type V Square · Type V Rectangular
Output:	Up to 3,254lm · Nominal up to 1,161lm
CCT:	2700K · 3000K
Mounting:	Column · Modular Column
Optical Accessories:	House-side Shield

## Modular Columns

Series:	Inula · Exelia
Light Engine:	Exelia with Gen5 · Inula with High Powered LEDs
Distributions	Exelia: Type I · Type II · Type III · Type IV · Type V Round · Type V Square · Type V Rectangular Inula: 1Q · 2Q90 · 2Q180 · 3Q · 4QS · 4QD
Output:	Inula up to 4,320lm · Exelia up to 3,254lm
CCT:	2700K · 3000K
Mounting:	Column
Base Accessories:	Design Void · Camera · Speakers



Increases in electric light at night expands the depths and times over which visual predators of young salmon can hunt, resulting in more salmon being eaten. Scientists have shown that light pollution—especially light in the blue spectrum—can alter the behavior of fish after only a few nights, and have knock-on effects for their offspring. Lighting that minimizes the negative impact electric light has on nature is especially helpful near the fresh and saltwater. Inula SteelCore Bollard is not only robust but it also offers amber lighting, a very low color temperature, making it less visible to wildlife.



## SteelCore Bollards

Series:	Inula Bollard · Blank Cover
Light Engine:	Choice of 1-4 quadrants
Distributions	1Q · 2Q90 · 2Q90MU (bollard only) · 2Q180 · 3Q · 4QS · 4QD
Output:	Up to 3,254lm · up to 1,16lm/W
CCT:	Amber · 32700K · 3000K
Mounting:	SteelCore Bollard





DarkSky Approved  
Projects





INULA  
BOLLARD





MISTELLA

BERNALILLO COUNTY

ALVARADO SQUARE, ALBUQUERQUE, NEW MEXICO





OLIVIO

TECHNOPOLE ANGUS PROJECT, MONTREAL, QUEBEC





EXELIA

NORTH CAMPUS VILLAGE: SOUTHERN OREGON UNIVERSITY, ASHLAND, OREGON





BETA PENDANT



HUDSON VALLEY CREDIT UNION, HIGHLAND, NY





AVANZA  
SOLAR





Saturn Cutoff



MARINA PARK, NEWPORT BEACH, CALIFORNIA



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