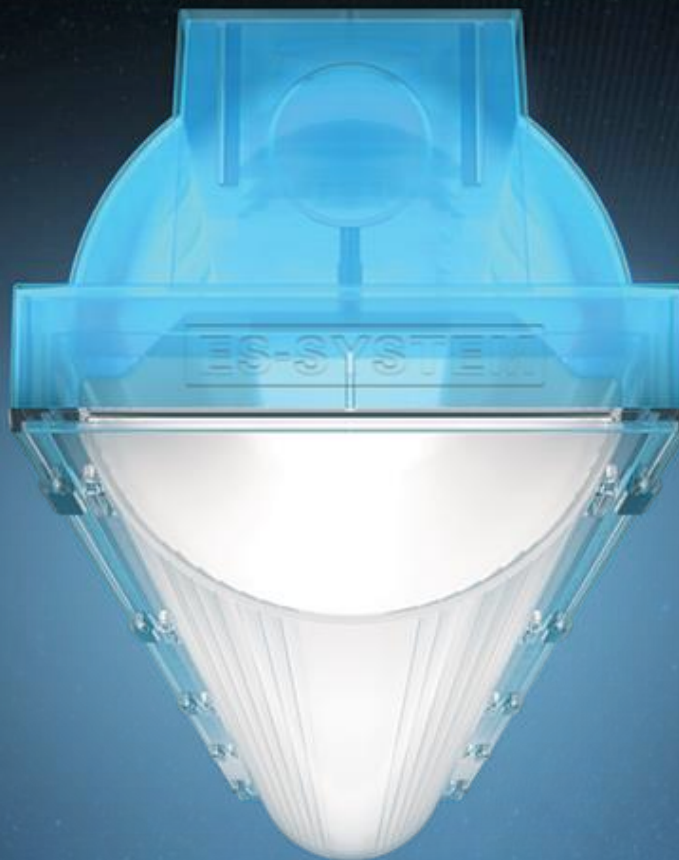
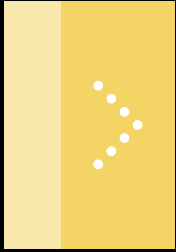


**ES-SYSTEM**  
Light is Life



**COSMO** <sup>FX</sup>

For Business. For Home. For You.



## Inspired by Space Applications

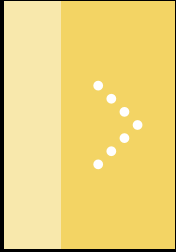
**ES-SYSTEM**  
Light is Life

### Space Applications

Maintaining synchronized circadian rhythms is important to health and well-being. NASA hypothesizes that long-term spaceflights significantly affects the synchronization of the circadian rhythm in humans due to changes in body composition, reduced physical activity and/or changes of heat transfer, thermoregulation, and non-24-hour light-dark cycle in space.



[https://www.nasa.gov/mission\\_pages/station/research/experiments/892.html](https://www.nasa.gov/mission_pages/station/research/experiments/892.html)

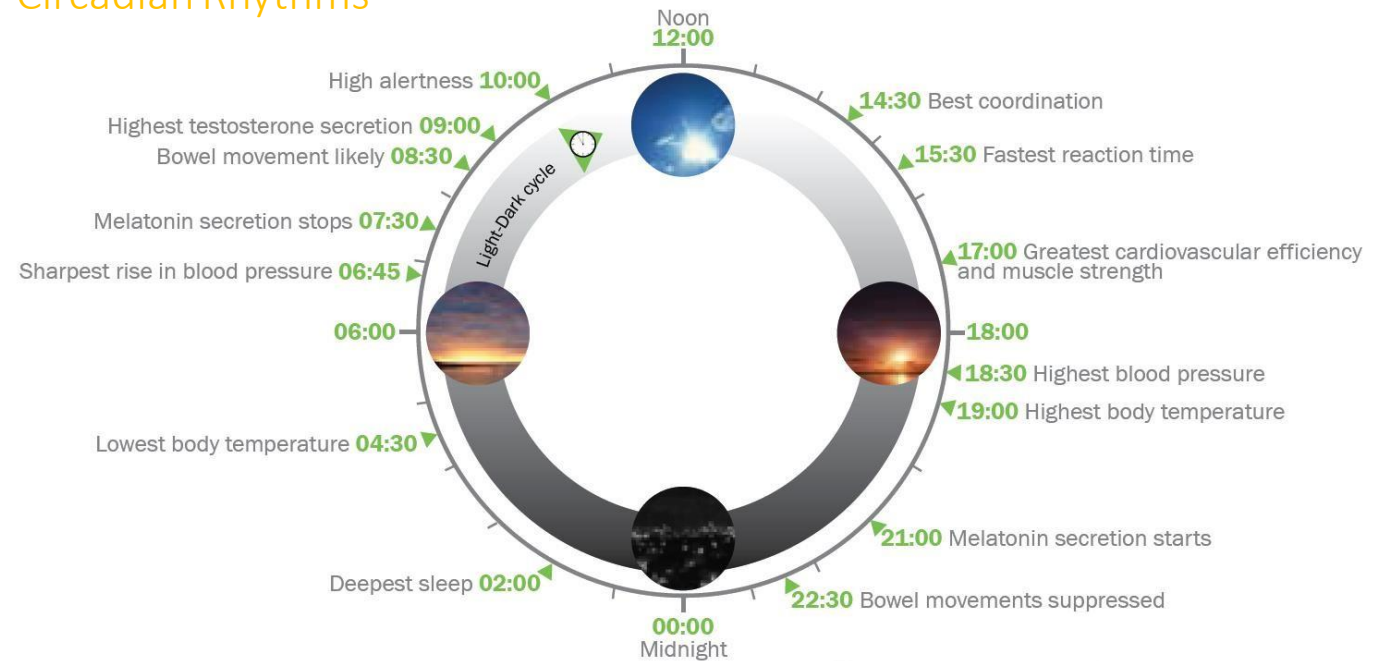


## From Space to Earth

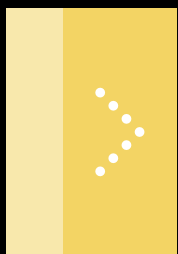
### Earth Applications

Maintaining regular circadian timing is important to human health and well-being. Understanding circadian rhythms provides a unique comparison for sleep disorders, autonomic nervous system disorders, and shift work-related disorders on Earth.

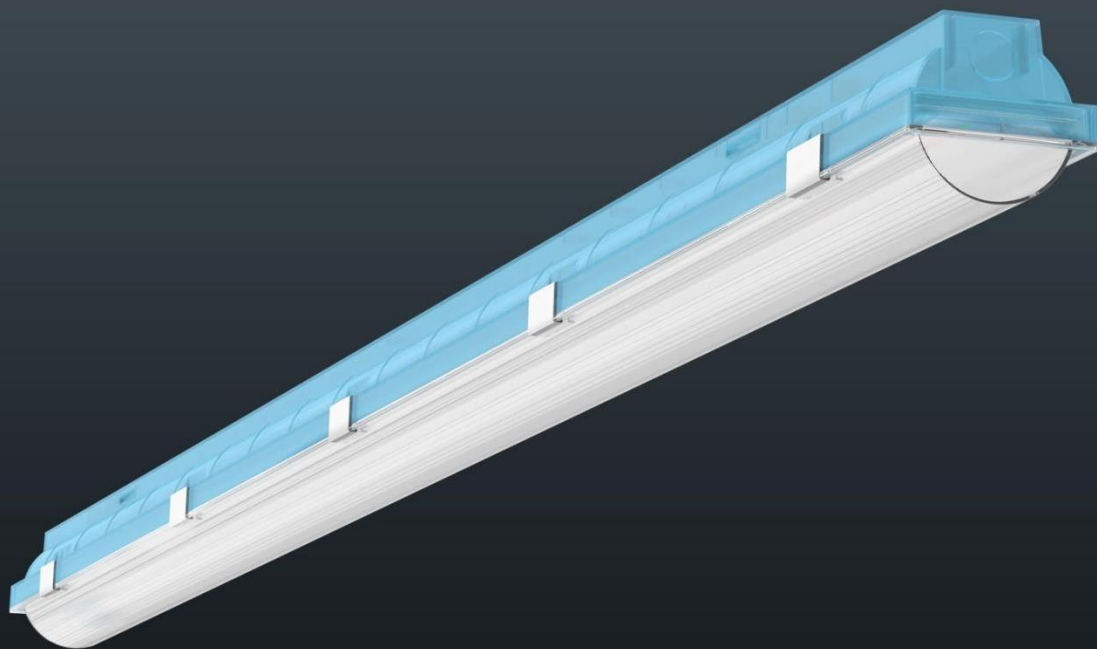
### Circadian Rhythms

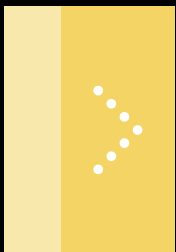






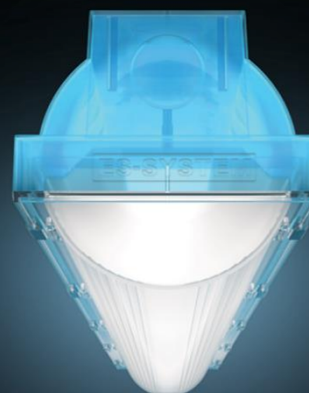
COSMO<sup>FX</sup> is versatile





## COSMO FX

A versatile family of compact luminaires for general lighting which has been specifically designed for LEDs and is characterized by unique design and increased resistance to adverse environmental conditions



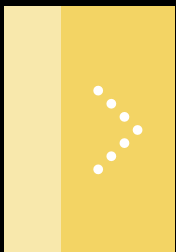
L  
1060 mm

H  
72 mm

1,70 kg

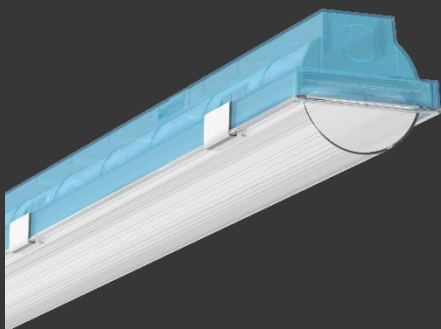
IP66

Ta  
-40°C - +50 °C

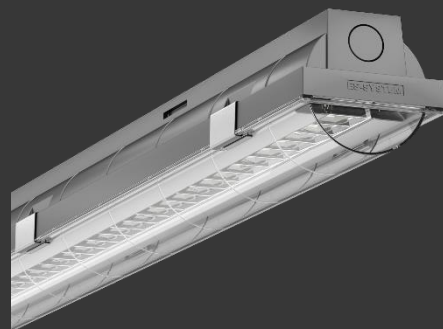


## COSMO FX family

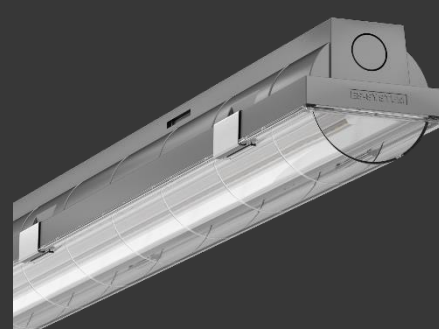
COSMO FX is a family of products designed to solve various types of lighting challenges



COSMO ORION



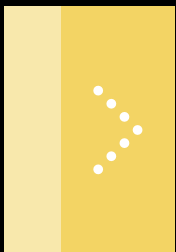
COSMO ECLIPSE



COSMO NOVA



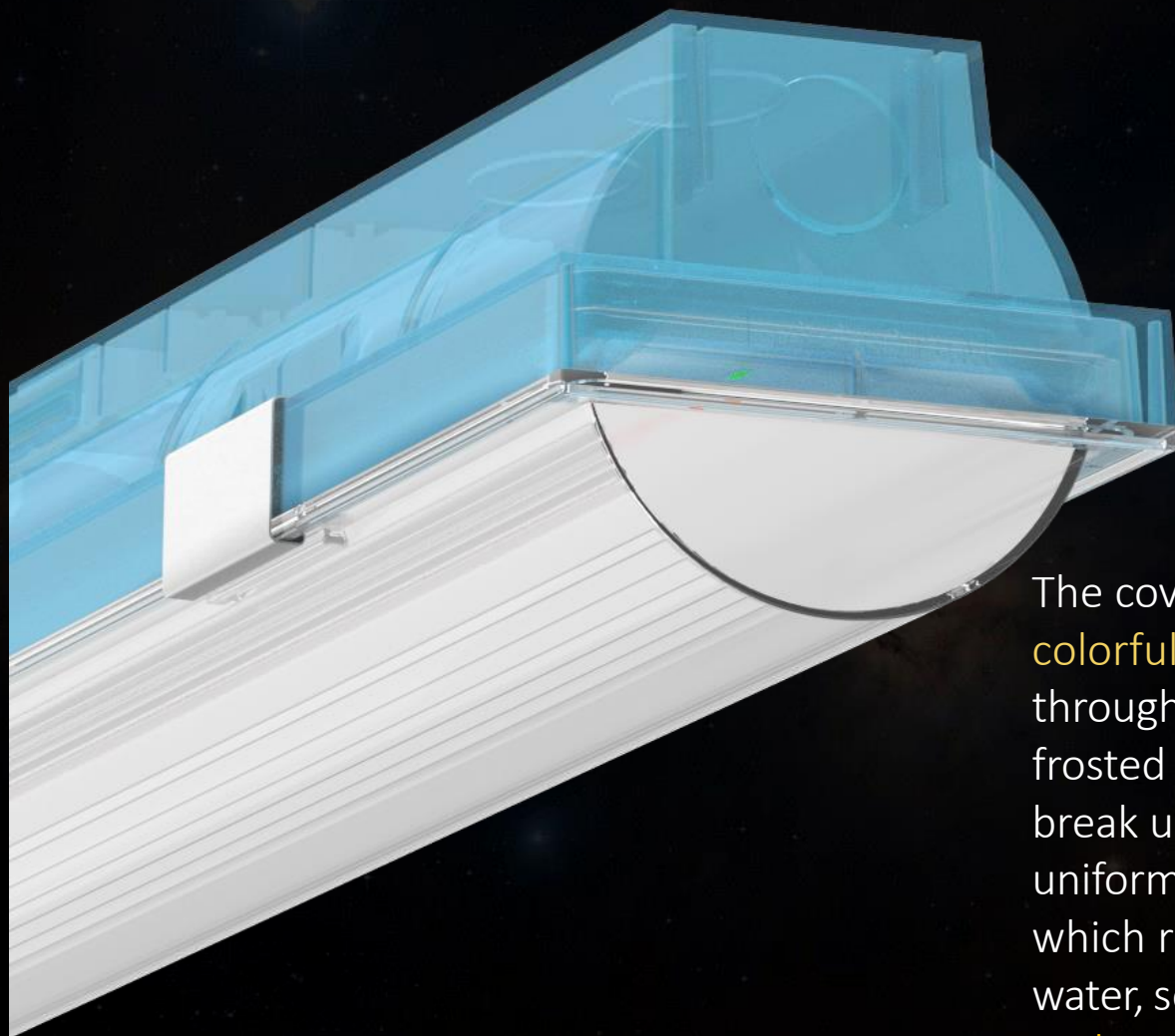
COSMO APEX



## COSMO ORION

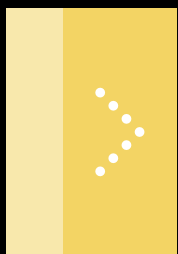
*Creative, colorful and playful*

**ES-SYSTEM**  
Light is Life



The cover is **polycarbonate**, transparent, and **colorful** with secondary LED module which shines through the housing. The diffuser can be clear or frosted polycarbonate with internal ribs. These ribs break up the direct view of the LEDs and provide uniform light distribution. Ideal product for areas which require protection against the ingress of water, solid objects or dust, and a **touch of a color and creativity**

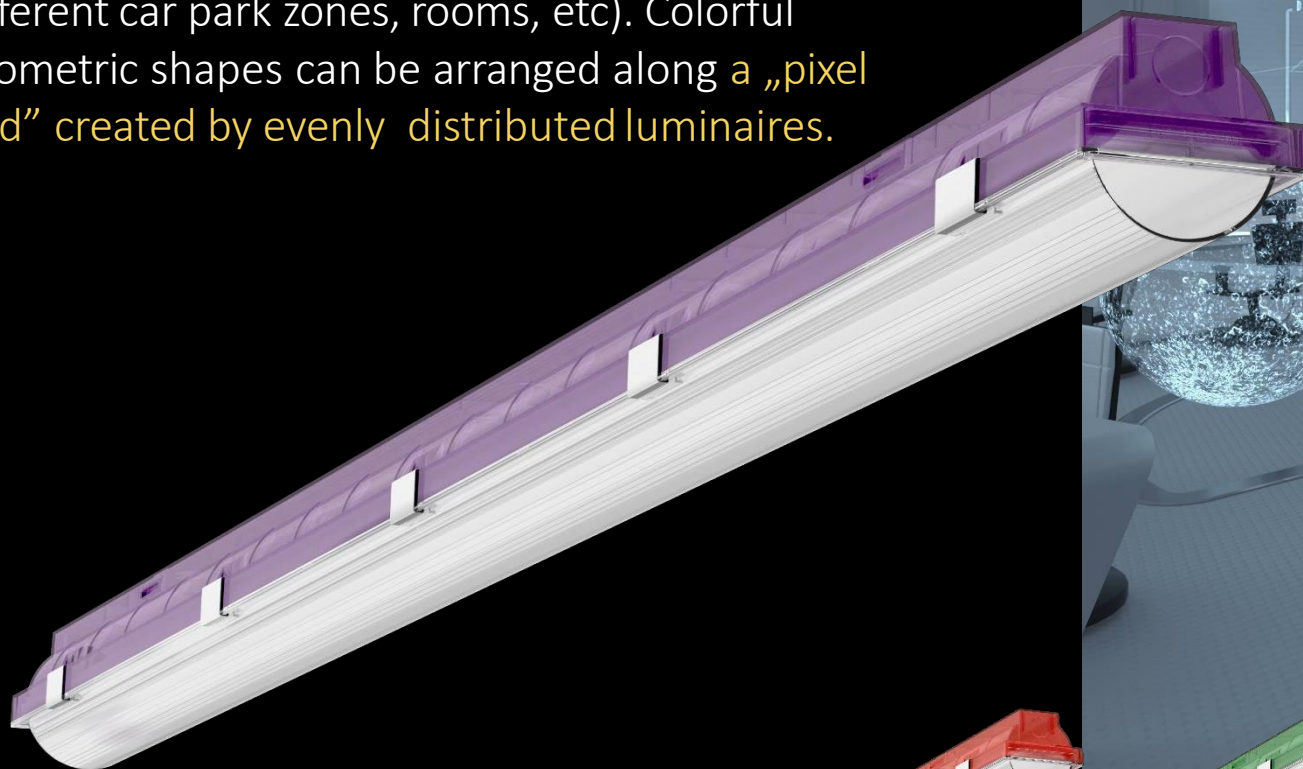




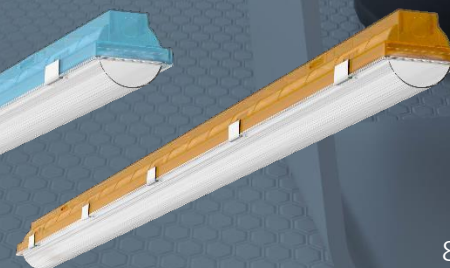
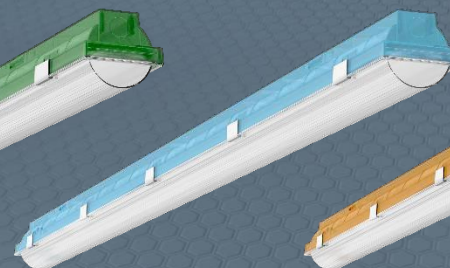
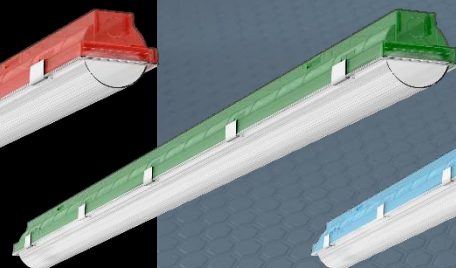
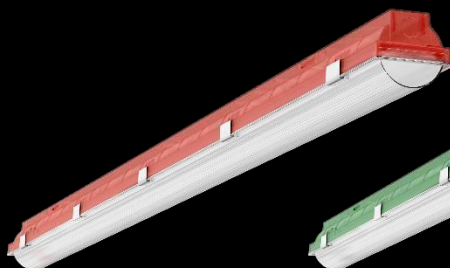
## COSMO ORION

*Creative, colorful and playful*

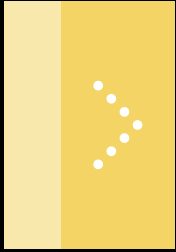
The luminaires' colors can be used to highlight separately defined areas in different areas (i.e. different car park zones, rooms, etc). Colorful geometric shapes can be arranged along a „pixel grid” created by evenly distributed luminaires.



IP 65 | SDCM <3 | CRI >85







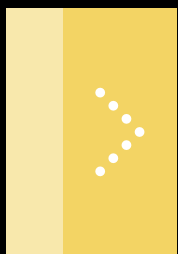
## COSMO ECLIPSE

*Low Glare "Dark Light"*

**ES-SYSTEM**  
Light is Life



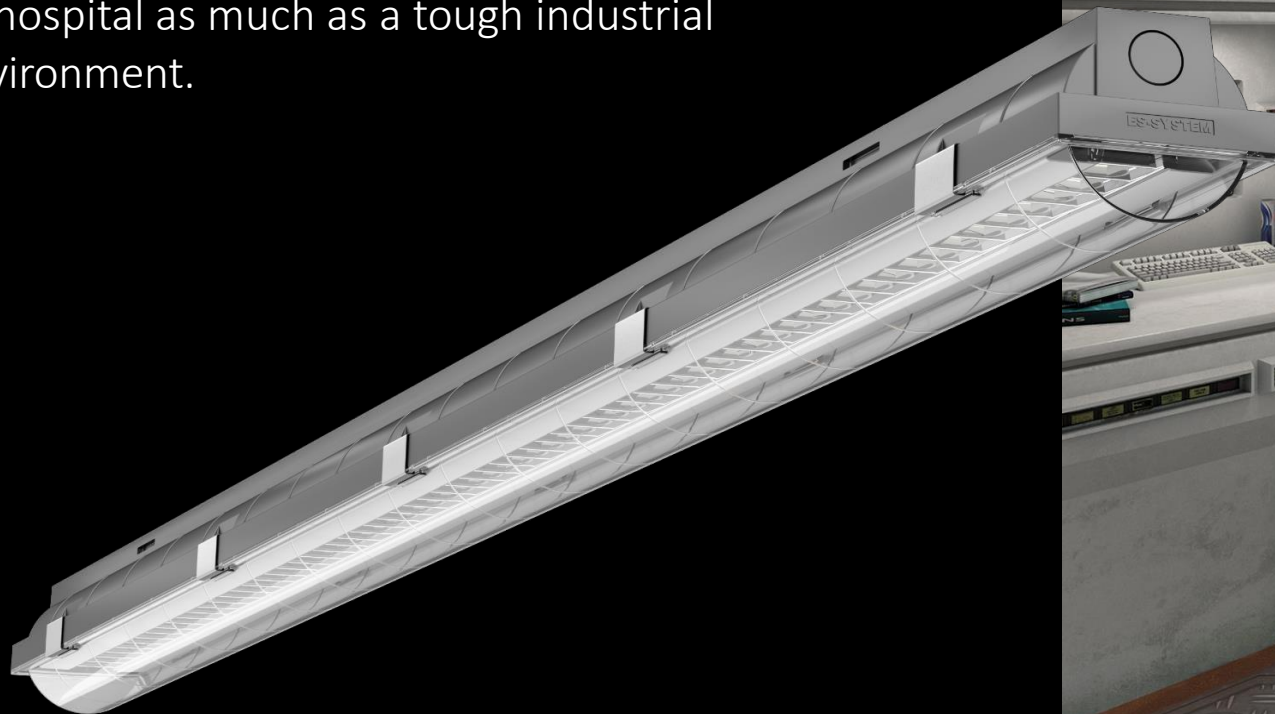
The body is polycarbonate with a gun metal grey paint finish. The clear diffuser has internal **darklight louvre** which provides **high quality, low glare lighting**.



## COSMO ECLIPSE

*Low Glare "Dark Light"*

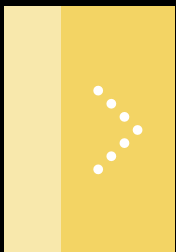
High luminous efficacy, high Ingress Protection, smoothly adjustable light output and appropriate color rendering. Its appearance would suit an office or hospital as much as a tough industrial environment.



IP 65 | SDCM <3 | CRI >85 | dark light

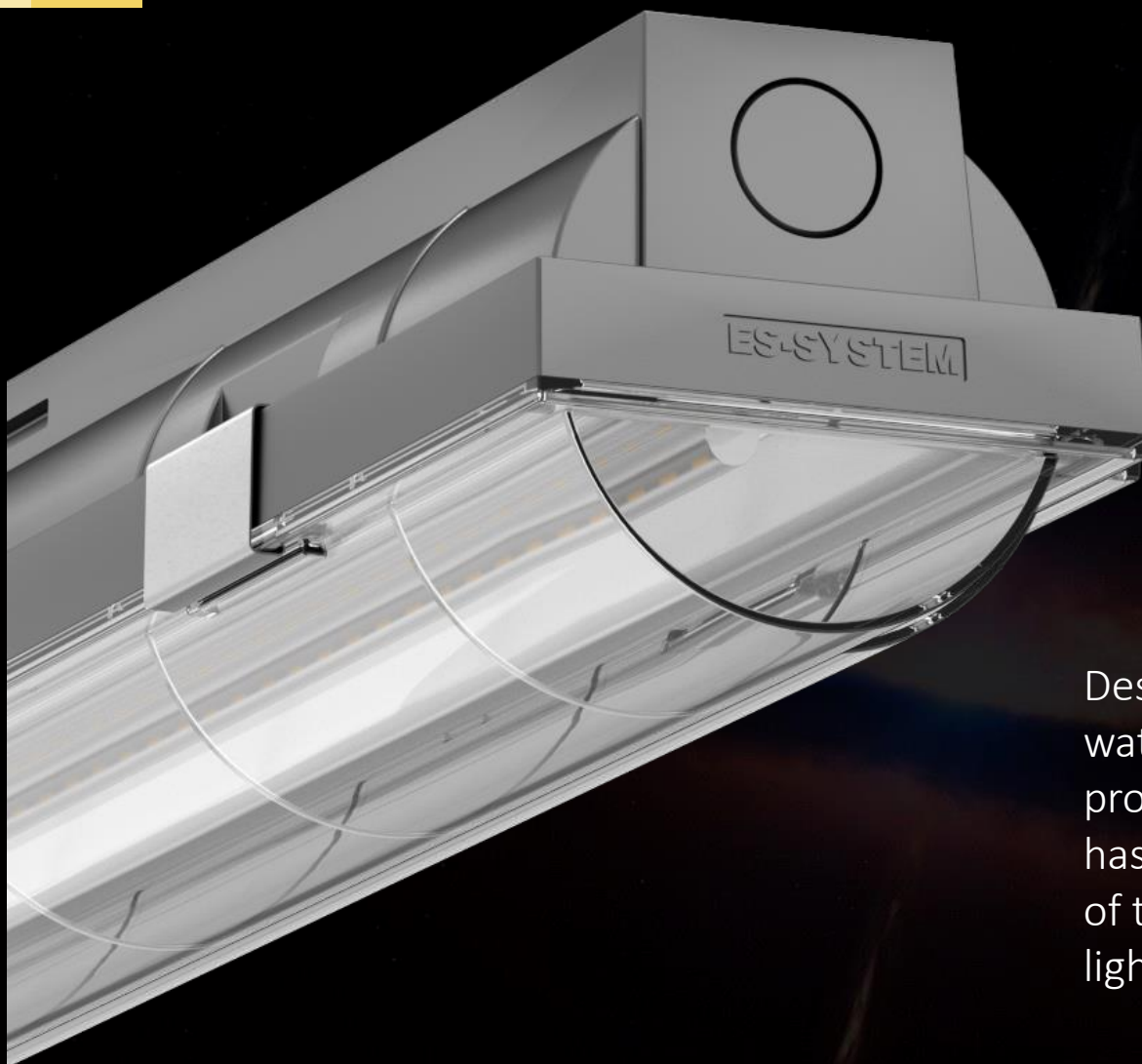
[www.essystem.pl](http://www.essystem.pl)





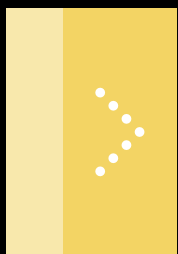
## COSMO NOVA

*Optimized optics for reduced investment costs*



Designed as a replacement for traditional waterproof luminaires (with an ingress protection rating of IP66). The clear diffuser has **internal linear prisms** running the length of the luminaire. The diffuser wraps around so light is emitted around 180 degrees.





## COSMO NOVA

*Optimized optics for reduced investment costs*

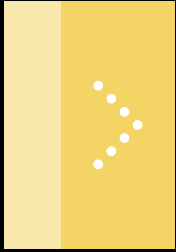


Within COSMO FX family, COSMO NOVA provides most options for thermal conditions and light distribution



145 lm/W | IP 66 | SDCM <3 | CRI >80 | 3 light distributions





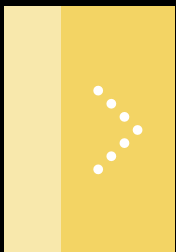
## COSMO APEX

*Top efficiency, best value*

**ES-SYSTEM**  
Light is Life

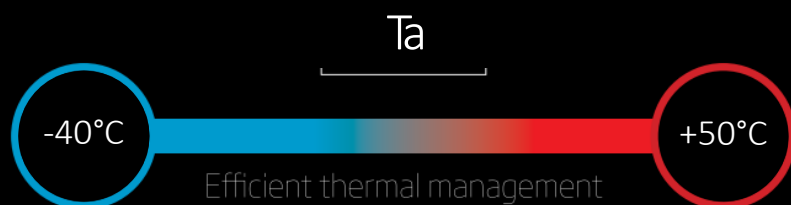


The diffuser is semi-circular in section and due to its distance away from the LEDs inside, the diffuser appears almost totally **uniform across its whole surface**. COSMO APEX offers unique design for common lighting applications requiring “**best value**” increased Ingress Protection.



## COSMO APEX

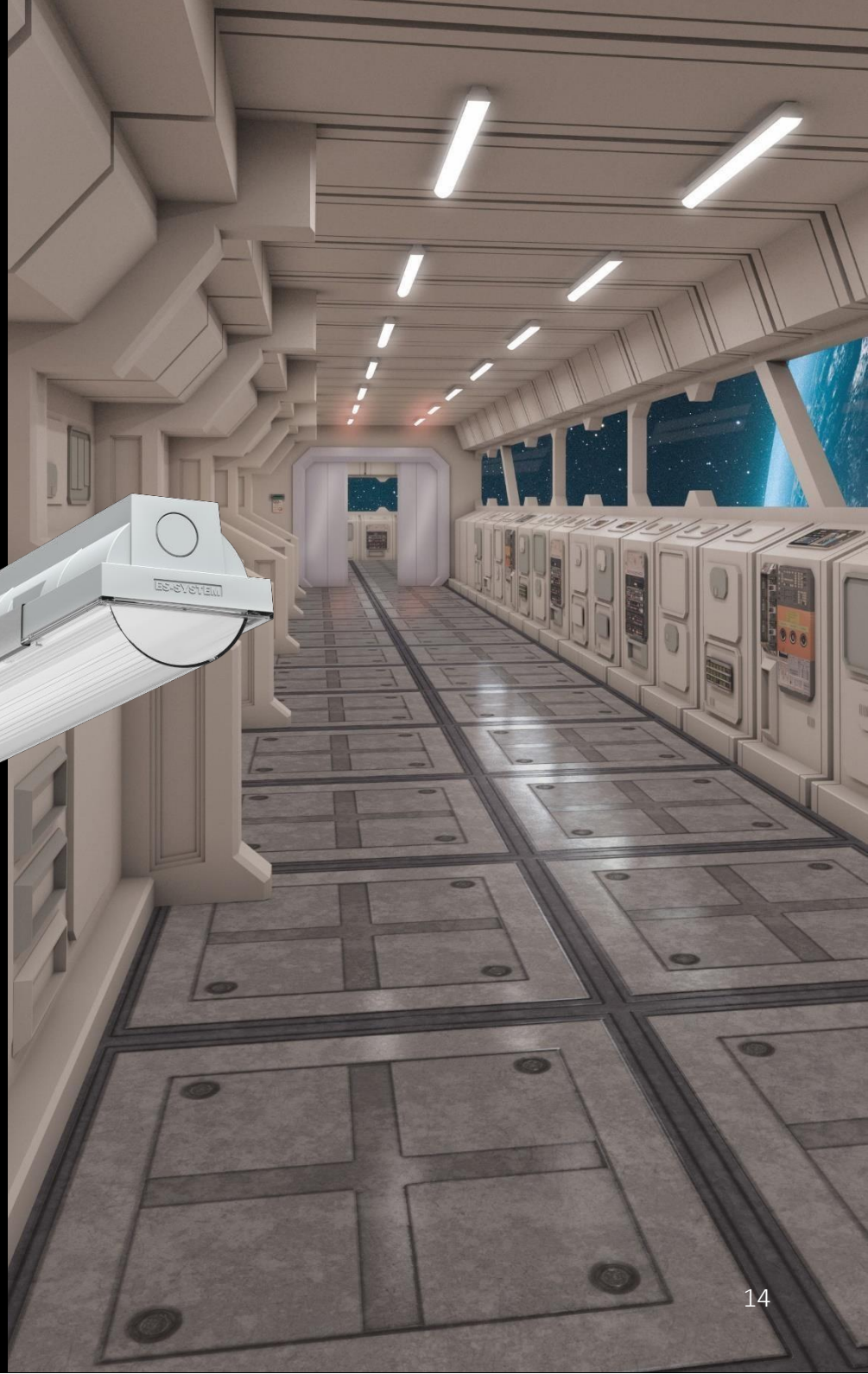
*Top efficiency, best value*



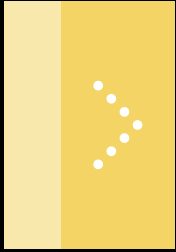
Best value, robust, reliable, efficient luminaires with high thermal management and high output parameters.



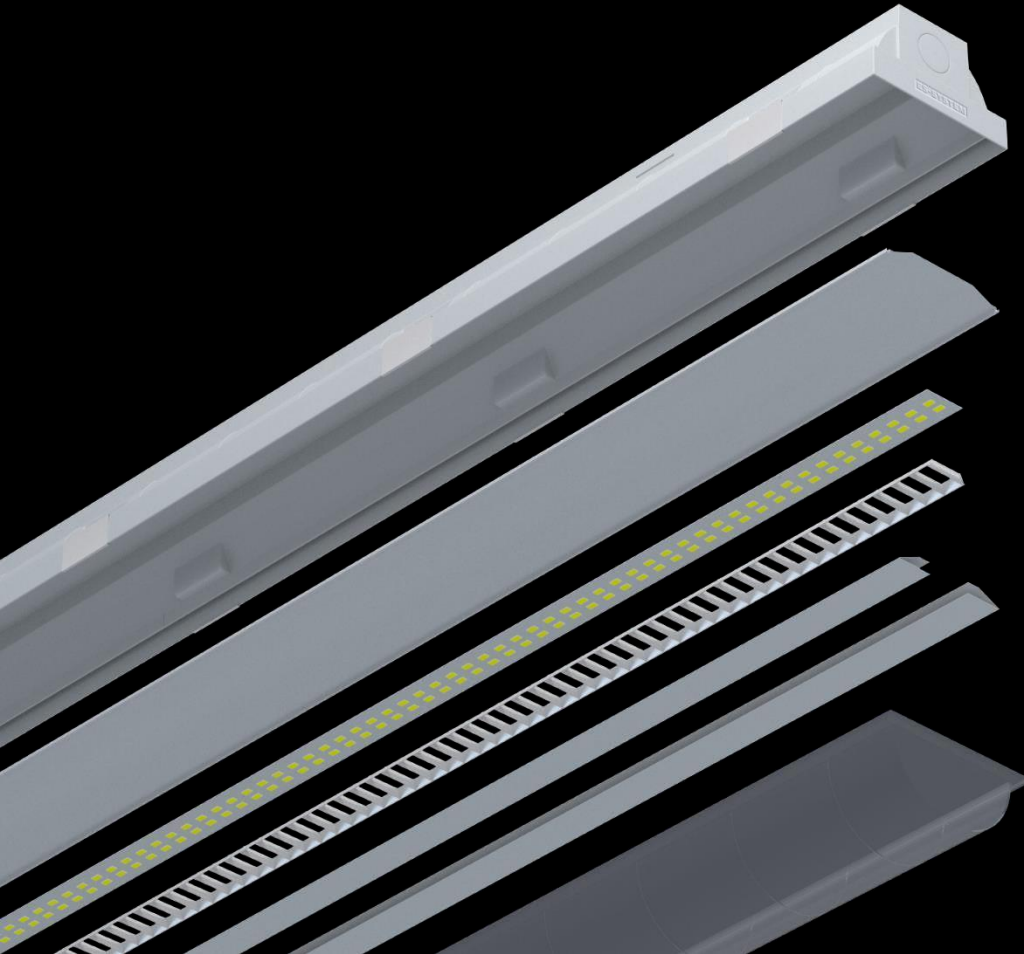
IP 66 | SDCM <3 | CRI >80 | 150 lm/W







COSMO FX



...are made of polycarbonate with high mechanical impact resistance and IP66 ingress protection.

...has been specifically designed for LEDs, COSMO FX parameters exceed those achieved by similar competitive products, despite their compact size and low weight.

In addition to unique and original design several color options are also available.

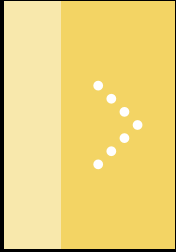
The choice of optics provides high-quality application specific lighting conditions

are classified as risk-free in group 0, which means that they do not pose a photobiological risk. This has been confirmed by the appropriate certificates.



**COSMO**

Selected project form around the world



## COSMO for Public Spaces

**ES-SYSTEM**  
Light is Life



Carpark, Mexico City



Carpark, Finland



Carpark, Mexico City



Carpark, Saudi Arabia

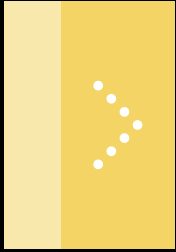


Carpark, Docklands, London



Riverside walk, Singapore





## COSMO for Offices

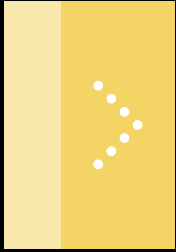
**ES-SYSTEM**  
Light is Life



Google office, Warsaw



Brokerage office, Turkey



# COSMO for Experimental Projects

**ES-SYSTEM**  
Light is Life

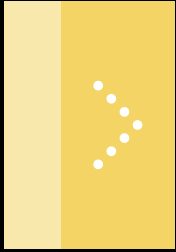


Copyright Urbanrigger.com

**FLOATING STUDENT HOUSING - COPENHAGEN (2017)**

Architects: URBAN RIGGER





## COSMO for Arts & Culture

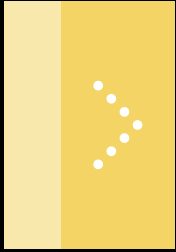
**ES-SYSTEM**  
Light is Life



### CARLOS SLIM MUSEUM– MEXICO (2014)

Architects: Fernando Romero , Ove Arup & Frank Gehry



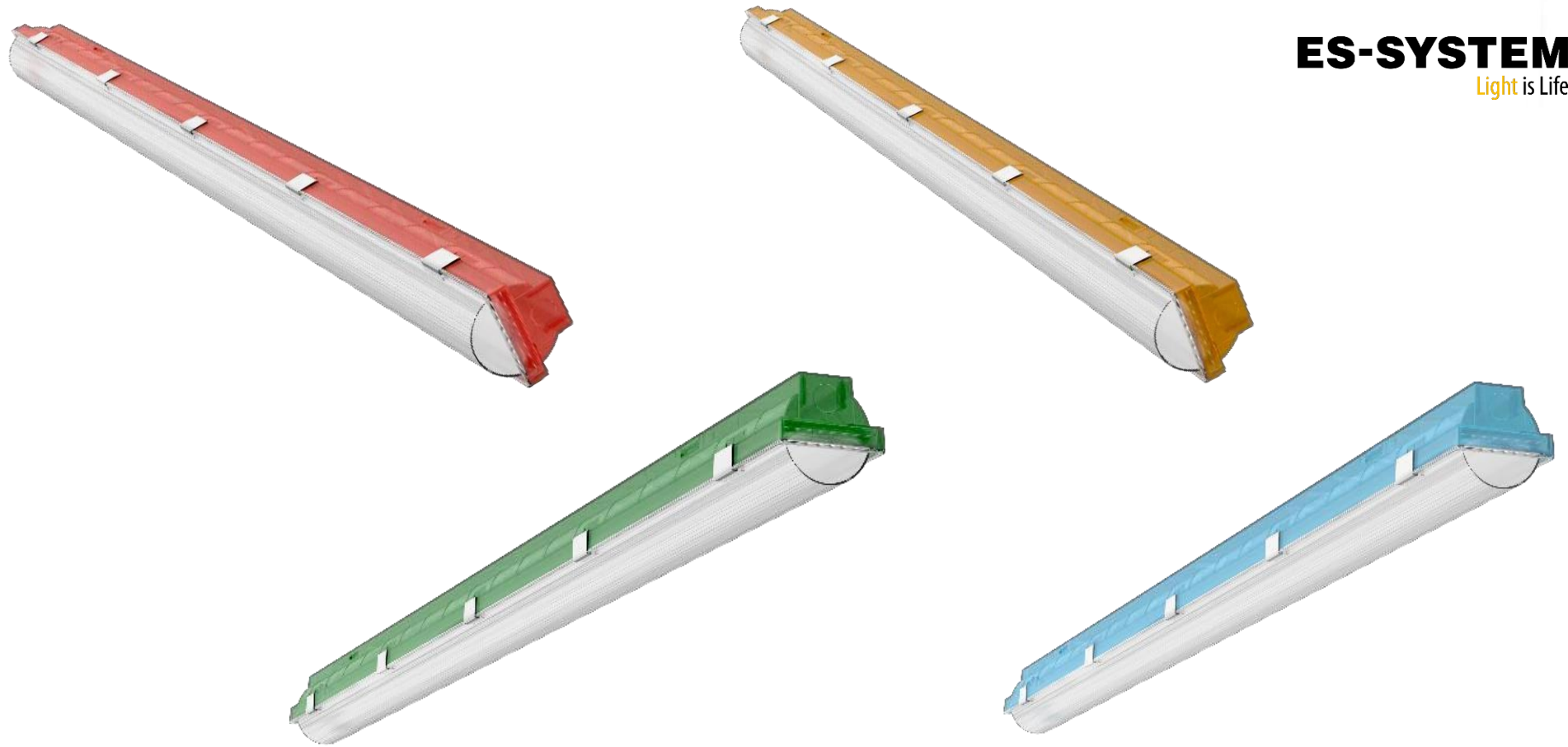


## COSMO for Commercial & Entertainment

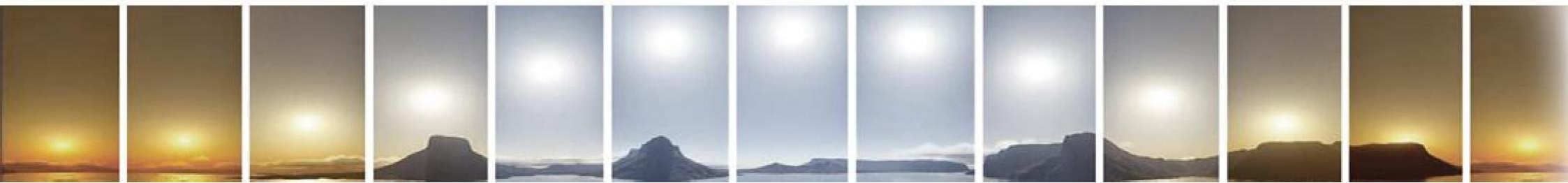
**ES-SYSTEM**  
Light is Life



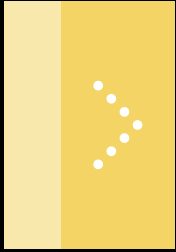
FERRARI WORLD – [ABU DHABI](#) – UAE (2010)



## Smart Lighting Solutions







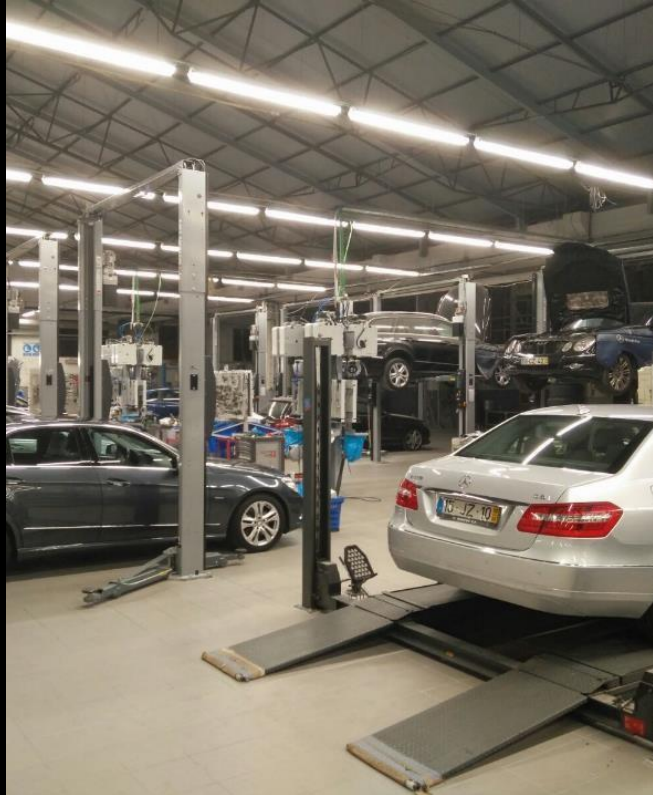
## Applications

**ES-SYSTEM**  
Light is Life



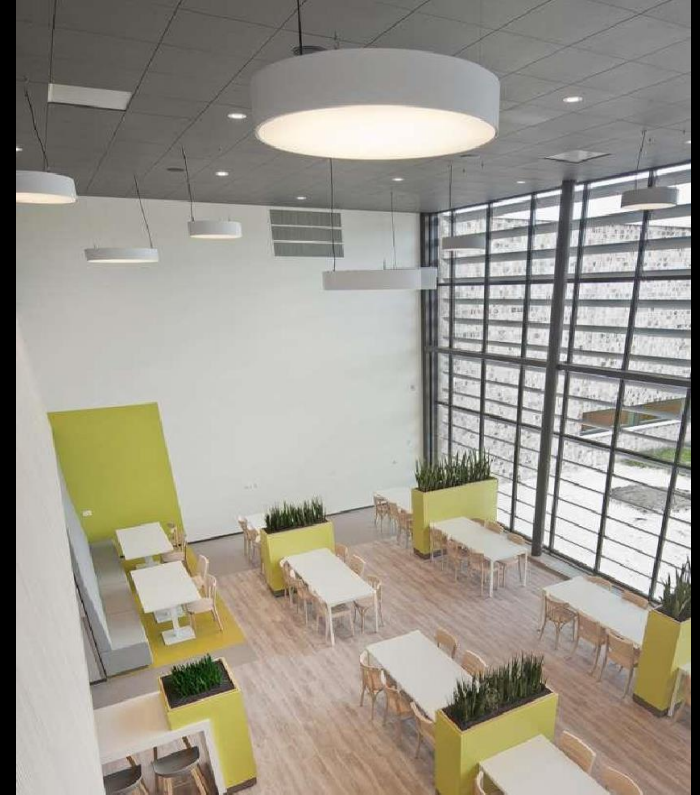
OFFICES

Daylight harvesting  
Circadian „Healthy Light“



INDUSTRY [WEARHOUSES,  
CARPARKS, FACTORIES]

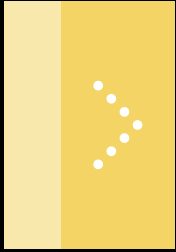
Energy Savings  
Safety



HOME [Senior Living, Schools,  
Hospitals]

Circadian „Healthy Light“





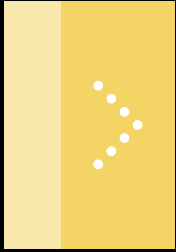
Application: Offices

**ES-SYSTEM**  
Light is Life

**Daylight Harvesting**

# Daylight Intensity and Occupancy Sensing

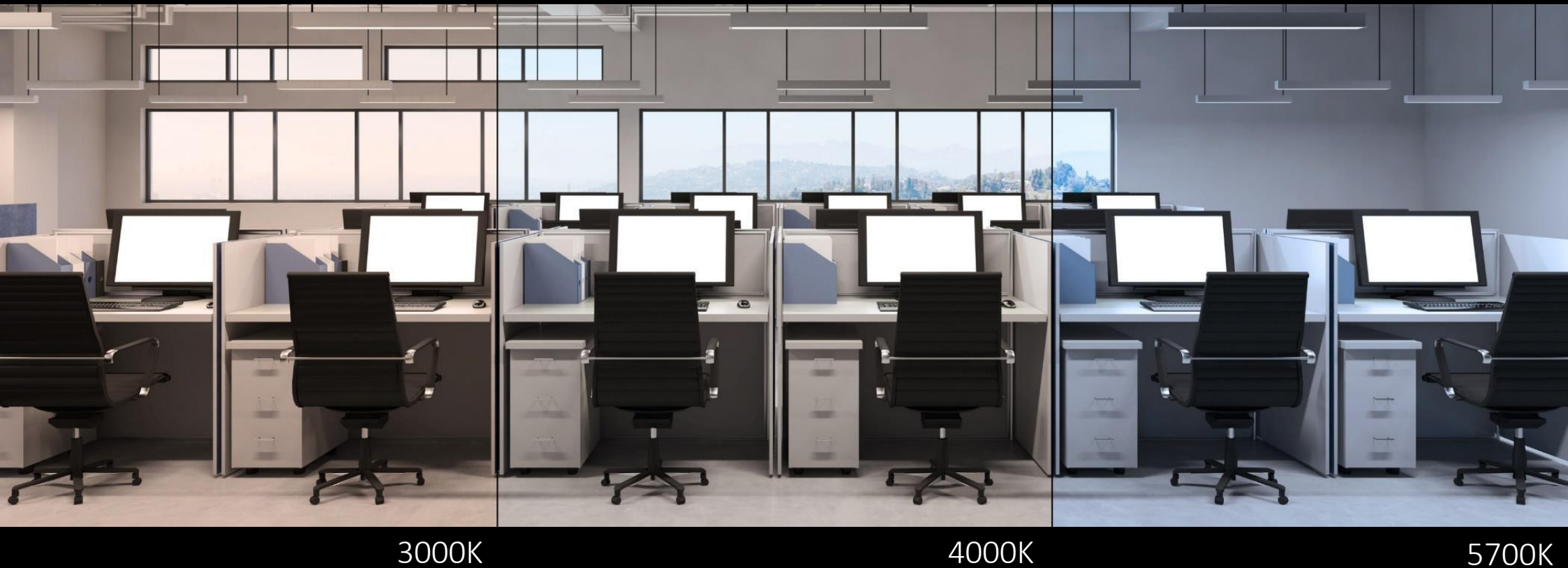




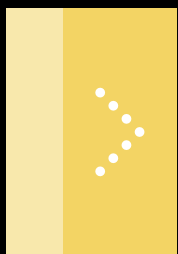
## Application: Offices

**ES-SYSTEM**  
Light is Life

**Circadian Rythm** #Human\_Centric\_Lighting







## Application: Industry

### Energy Savings #Occupancy sensing and energy saving lighting rules

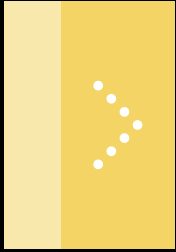


Energy savings compared to conventional luminaires:

55%

Luminaire	COSMO LED
Floor space	10 000 m <sup>2</sup>
Number of luminaires	400
Energy consumption	31 600 W
Energy consumption using conventional light sources	57 600 W
Energy demand	2,08 W/m <sup>2</sup> /100lx
Energy demand using conventional light sources	4,06 W/m <sup>2</sup> /100lx

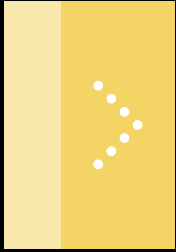




## Application: Carparks

**Safety** #Carpark\_safety #energy\_savings # dimming to 20%

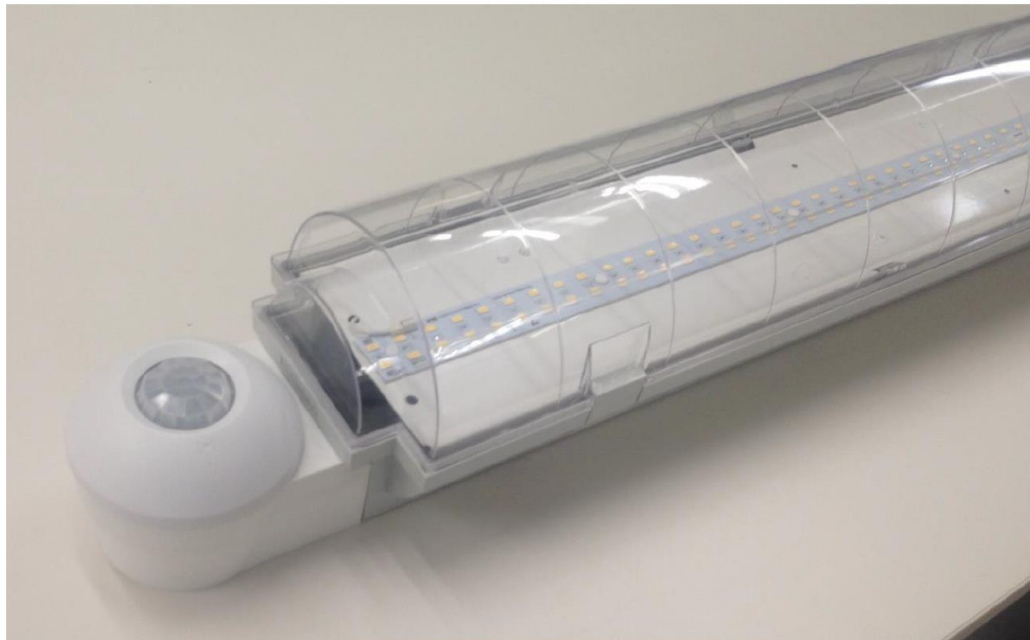


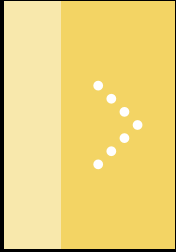


Smart COSMO

**ES-SYSTEM**  
Light is Life

- + The Cosmo will require a supplemental plastic housing to mount an IP65 rated “Ruggedized Sensor”.





## Energy Savings with COSMO

### Test Data - COSMO

Brightness Level (%)	COSMO – 240VAC		Measured LED Current (mA)	Current Level (%)	Current Error (%)
	Measured	Reported			
100%	52	52	356	100%	0%
90%	50.3	50	346	97%	7%
80%	43.4	43	299	84%	4%
75%	39.7	40	274	77%	2%
70%	36.4	36	251	71%	1%
60%	29.7	30	204	57%	-3%
50%	27.3	24	161	45%	-5%
40%	17.8	18	118	33%	-7%
30%	12	12	74	21%	-9%
25%	9	9	52	15%	-10%
20%	7.1	7	37	10%	-10%
10%	6.5	6	33	9%	-1%
5%	6.5	6	33	9%	4%
0%	1	0	0	0%	0%