Lighting Solutions

For seats, cabins and monuments

SCHOTT

glass made of ideas

Content

Lighting solutions

For seats, cabins and monuments

The design of an aircraft cabin interior plays an important role: It not only represents the airlines' brand, but even more importantly, it contributes to crew and passenger comfort and well being during a flight. SCHOTT has been delivering illumination solutions for aircraft seats for more than 20 years. Now new products such as the SCHOTT® Opal reading light series, the SCHOTT® HelioCurve as well as customized feature light design concepts combine esthetic appeal, visual performance, and easy integration.

Aircraft seats are key elements in differentiating airline brands, and for that reason, the design, comfort, and functionality of the seats are top priority. Seat lighting is particularly important because it plays both functional and emotional roles. As a lighting expert, SCHOTT offers a wide variety of lighting concepts based on both fiber optic and LED solutions and adapted to the state-of-the-art needs of our customers.

Reading lights

Elegant and intuitive

Combining strong visual performance with smart usability and an ultra-slim style, our personal illumination solutions is highly intuitive, adjusting to passenger needs.

Modular and efficient

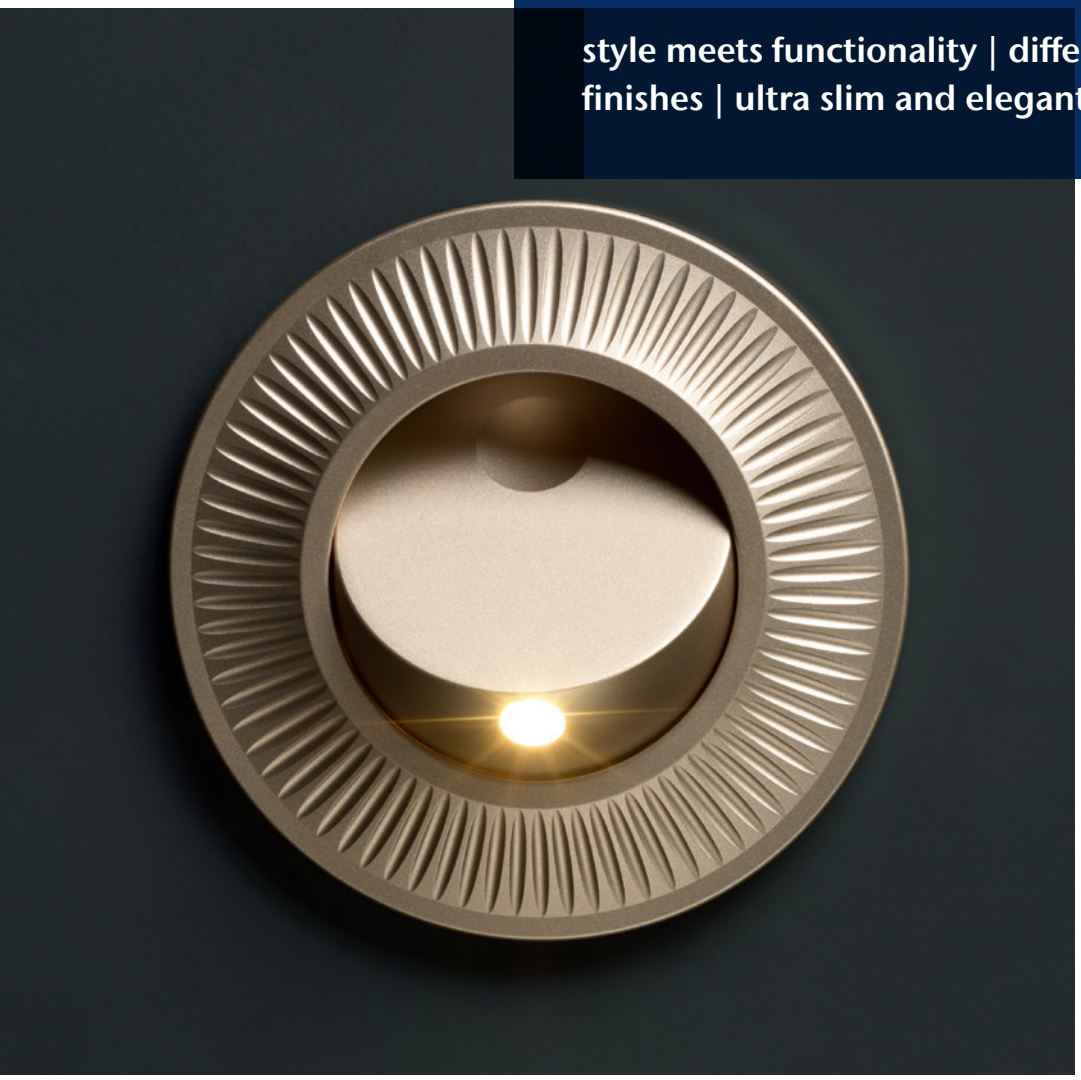
Easily integrated and low maintenance, our modular lighting system offers different shapes and finishes for highly individual lighting solutions.

Established and proven

The classic semi-compact and flex-and-stay reading light designs have been proven over many years of service and feature a robust design that is customizable to the airlines' needs.

SCHOTT® Opal series

style meets functionality | different shapes and finishes | ultra slim and elegant



Ray | *Design by PearsonLloyd

The Opal series is a modular concept which offers an elegantly slimline and functional in-seat reading light design, which can be customized into different shapes, color schemes and finishes depending on individual airline or cabin requirements. Developed in cooperation with PriestmanGoode, our new Opal Cover variant now perfectly matches seat colors and leather, synthetic leather and fabric materials.

The smart approach also saves time and effort for qualification processes, and elements are easily installed into all types of surface. Opal lights can be switched on or off by a soft touch on the faceplate, and their wide rotation angle allows the light cone to be adjusted to the passenger's personal preference.

SCHOTT® Opal

Standard

Plaza

Square

SCHOTT® Opal Cover

Leather

Fabric

Synthetic leather

Key benefits

- modular concept
- elegant and slim
- easy to install
- passenger-friendly usability
- customizable light colors
- installation depth 0.5 inch

Technical Specifications	
Wide input voltage range	12 V to 28 V DC fixed voltage or power PWM
Total current @ full on	Max. 60 mA
Power consumption / max power dissipation @ full on	Max. 1 W
Weight	Max. 100 g
Orientation light 1-dot design	Yes or no
Color temperature of main LED / orientation light	5000 K ± 10% , 3500 K ± 10%
Rotation	± 40°
Tilt mechanism	25°- 45° seamless
Surface finish aluminium anodized	clear, champagne gold, rose gold, black
Connector type	TE connectivity, Amphenol SJS
Qualification status	Qualified for all major aircraft

Classic reading light series

proven over many years of service | customizable | robust and elegant

The semi-compact and flex-and-stay reading lights are based on a modular design that combines standard features and customizable qualities with wall-mounted adjustable LED lights, adding value to the seat design. The series is also certified for all major aircraft platforms and can retrofit easily into just about any project.

- elegant design
- two movable adjustments
- illuminated switch
- customizable finishes

(straight/angled)

- robust design
- rotatable movement
- illuminated switch
- compact wall-mounted light
- customizable finishes

- slim and elegant
- high freedom in movement of light output position due to flex-and-stay
- illuminated switch
- customizable finishes

Technical Specifications	SCHOTT® Phoenix	SCHOTT® Polaris	SCHOTT® Horizon	SCHOTT® Zenith
Power supply	5 to 28 V DC	5 to 28 V DC	5 to 28 V DC	
Standard switching sequence	Off / 30% / 60% / 100%	30 % / 60 % / Full On / Off	30 % / 60 % / Full On / Off	
Power consumption @ full power	Max. 1 W	Max. 1 W	Max. 1 W	
Weight (typical, for 410 mm total length)	Max. 200 g	Max. 200 g	430 g | 460 g	
Minimum bending radius of the flex & stay material			75 mm	
Color temperature	5500 K ± 10 %	5500 K ± 10 %	5500 K ± 10 %	
Standard connector type	Amphenol SJS	Amphenol SJS	Amphenol SJS	
Qualification status	Qualified for all major aircraft	Qualified for all major aircraft	Qualified for all major aircraft	

Reading lights

SCHOTT® Opal

SCHOTT® Phoenix

	SCHOTT® Opal	SCHOTT® Phoenix
Power supply	12 V to 28 V DC fixed voltage or power PWM	5 to 28 V DC
Standard switching sequence		Off 30 % / 60 % / 100%
Power consumption @ full power	Max. 1 W	Max. 1 W
Weight	Max. 100 g	Max. 200 g
Minimum bending radius of the flex & stay material limited to	N/A	N/A
Color temperature	5500 K ± 10 % , 3500 K ± 10%	5500 K ± 10 %
Standard connector type	TE connectivity, Amphenol SJS	Amphenol SJS
Qualification status	Qualified for all major aircraft	Qualified for all major aircraft

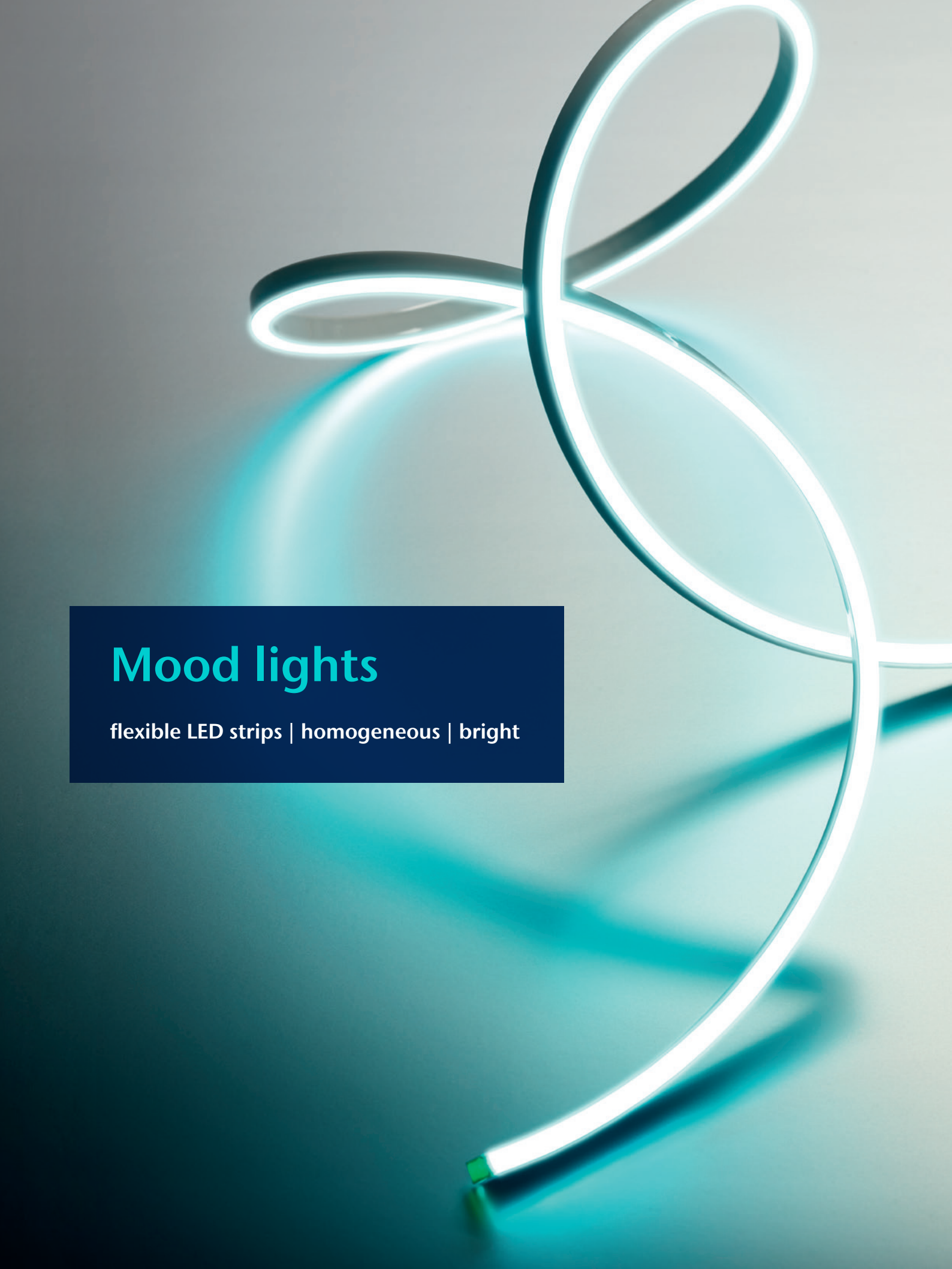
at a glance

SCHOTT® Polaris
(straight/angled)

SCHOTT® Horizon

SCHOTT® Zenith

SCHOTT® Polaris	SCHOTT® Horizon	SCHOTT® Zenith
5 to 28 V DC	5 to 28 V DC	5 to 28 V DC
30 % / 60 % / full on / off		30 % / 60 % / full on / off
Max. 1 W	Max. 1 W	Max. 1 W
Max. 200 g	Max. 430 g (for 410 mm length)	Max. 460 g (for 410 mm length)
N/A	75 mm	75 mm
5500 K ± 10 %	5500 K ± 10 %	5500 K ± 10 %
Amphenol SJS	Amphenol SJS	Amphenol SJS
Qualified for all major aircraft	Qualified for all major aircraft	Qualified for all major aircraft



Mood lights

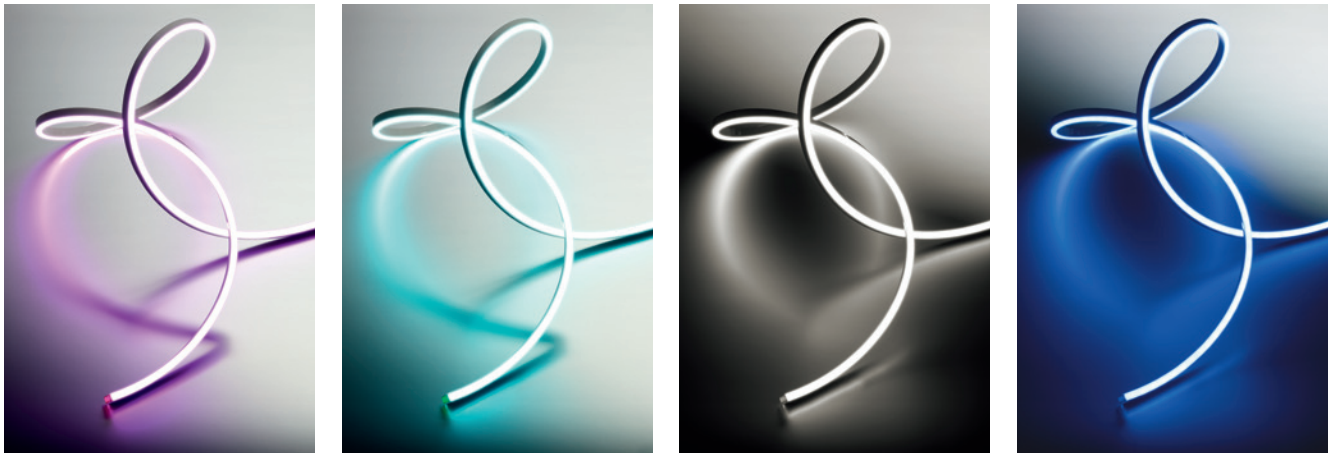
flexible LED strips | homogeneous | bright

When flying, light and colors can have a significant effect on the passenger experience. On long-haul flights in particular, good quality rest and relaxing surroundings can make a big difference. SCHOTT's integrated approach to interior lighting optimizes the positive effects on passengers while in the air.

SCHOTT's mood lights offer high and homogeneous light emission with excellent color characteristics for perfect wash and contour lights. We work closely with airlines and aircraft designers to create bespoke lighting solutions including lighting scenarios. We also offer holistic approaches for illumination in all areas of the cabin – from the aisles to the restrooms.

A wide product portfolio, from pure LED solutions to a combination with fiber optics, serves every customer's needs.

SCHOTT® HelioCurve



Colors of SCHOTT® HelioCurve

Technical specifications	Single color (white) LED strip	Full color (RGBW) LED strip
Power supply	21 to 31 VDC	21 to 31 VDC
Current per segment (60 mm)	20 mA	20 mA
Power consumption	13.5 W per meter	13.5 W per meter
No. of LEDs per segment (60 mm)	5 (3000 K)	5 per color (RGBW)
Brightness at distance of 420 mm	150 lux	R:46 lux, G:200 lux, B:45 lux, W:150 lux
Dimensions	7 mm x 14 mm	7 mm x 14 mm
Min. / max. length	60 mm / 2100 mm (multiples of 60 mm) + 28 mm header + 175 mm pigtail and connector	60 mm / 2100 mm (multiples of 60 mm) + 28 mm header + 175 mm pigtail and connector
Min. bending radius	80 mm	80 mm
Weight	130 g/m	130 g/m
Aging and temperature compensation	No	Yes, but only in combination with Multi Light Controller
Color temperature of white LED	3000 K +/- 200 K	2700 K +/- 200 K
Color rendering index	CRI: > 90 (typ.: 93) @ 3100 K	CRI: > 90 (typ.: 93) @ 2700 K
Communication protocol	PWM (1 channel)	PWM (4 channels)
Connector type	TE connectivity, Amphenol SJS	TE connectivity, Amphenol SJS
Qualification status	Qualified for all major aircraft	Qualified for all major aircraft

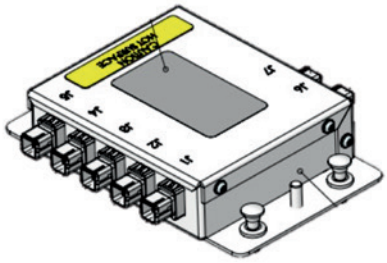
Key benefits

- RGBW or single color white
- no distance to the illuminated surfaces required
- no additional covers or diffusers needed

Multi Light Controller

The SCHOTT® Multi Light Controller works in combination with the HelioCurve LED strip and provides status management, reporting of P/N and S/N, and power leveling by receiving information from the LED strip protection memory header. The Multi Light Controller has to be addressed with an RS485 communication protocol. Combining SCHOTT® HelioCurve LED strip (RGBW) with the Multi Light Controller enables independent temperature and aging compensation for each connected LED strip.

Technical specifications	
Power supply	21 to 31 VDC
Dimensions	108 mm (84 mm w/o connectors) x 140 mm x 30 mm
Weight	270 g
Communication protocol	RS485
Connector type	• 5 output channels for HelioCurve RGBW: TE connectivity • 1 extra output channel: permanent DC output w/o any regulation • 1 input channel: TE connectivity
MLC intelligence	• Color control via CIE 1931 2° Yxy • Status management (LED current, LED temperature, input voltage monitoring) • Aging & temperature compensation in combination with HelioCurve (RGBW) • Power leveling
Qualification status	Qualified for all major aircraft



Key benefits

- status management
- color control
- power leveling
- aging & temperature compensation
- memory interface with HelioCurve LED strips (RGBW)

Multi Light Controller

LED light sources and fiber optic products

side-emitting optical fibers | end-emitting optical fibers | excellent flexibility

SCHOTT LED and fiber optic lighting products have pioneered markets such as the in-seat aviation reading light market. SCHOTT offers the aviation and trans-portation industry innovative and high-quality designs, quick turnaround sampling, and cutting-edge solutions to illuminate special environments such as aircraft interiors.

By technically separating light guides from LED light sources, you can realize almost any design, even if space is limited. The system has very high flexibility for creating mood lighting or functional lighting. With one LED light source you can cover several applications on the seat. The visible part of the light spot can easily be customized to match the over-all seat and cabin design. Furthermore, this system significantly reduces maintenance costs as the light is built in modules that can be replaced individually, without ever having to replace the complete light.

SCHOTT® HelioLine

- high flexibility
- creates mood lighting or functional illumination
- one LED light source can cover several applications in the cabin
- compliant with FAR 25-853 and ABD0031 standards regarding flammability, smoke and toxicity

SCHOTT® HelioIntense

- controlled in a number of different ways – illuminated functionall lighting realized as spot or line lights
- compact design
- passive cooling

SCHOTT® HelioFlex

- no electrical interference with on-board wireless applications
- small bending radii
- compliant with FAR 25-853 and ABD0031 standards regarding flammability, smoke and toxicity

SCHOTT® HelioLine | side-emitting optical fibers

Technical Specifications		
Cable diameter	3.85 ± 0.15 mm	4.85 ± 0.2 mm
Bending radius	> 10 mm	> 15 mm
Weight cable	42 g/m	55 g/m
Cable material	Silicon	Silicon
Cable color	White translucent	White translucent
Mounting and cleaning	No tensile stress or high pressure allowed	No tensile stress or high pressure allowed
Qualification status	Qualified for all major aircraft	Qualified for all major aircraft

SCHOTT® HelioFlex | end-emitting optical fibers

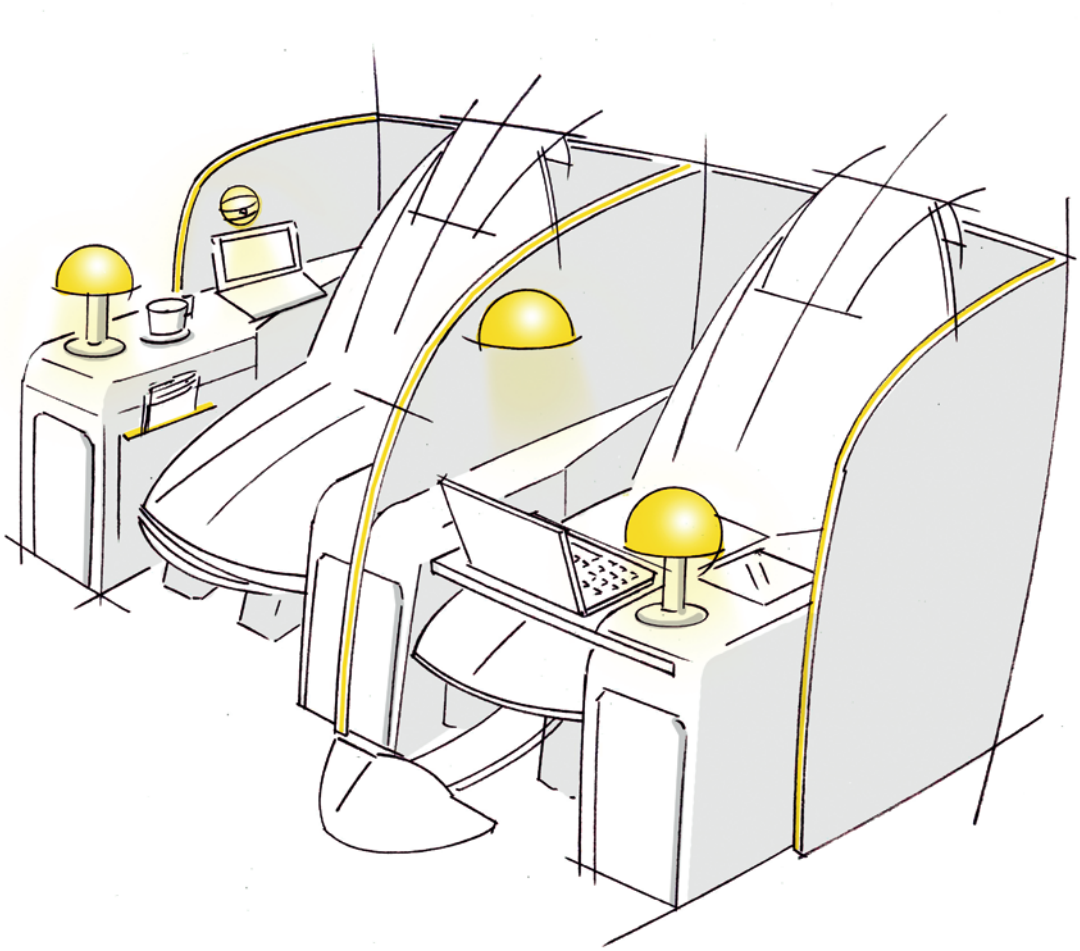
Technical Specifications		
Cable diameter	2.0 ± 0.2 mm	4.5 ± 0.2 mm
Bending radius	4 mm	15 mm
Weight cable	30.5 g/m	65 g/m
Cable material	Glass braid with silicon coating	Silicon
Qualification status	Qualified for all major aircraft	Qualified for all major aircraft

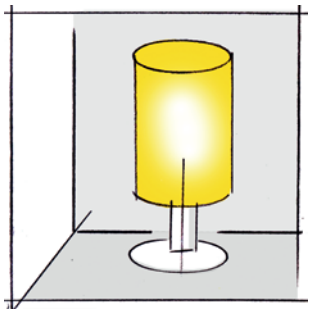
SCHOTT® HelioIntense | strong and efficient LED light source

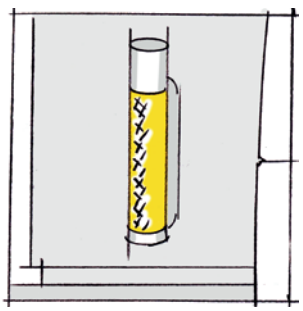
Technical Specifications	
Power input	12 – 28 VDC, 28 VDC direct aircraft power
Power consumption	Max. 4.5 W
Control	External switch | RS485 | PWM
Control features	On / Off / Dimming
Color	White (other single colors possible)
Available color temperatures	2700 K (± 600 K) | 3000 K (± 600 K) | 4000 K (± 600 K) further and other colors on demand
Address selection	Daisy chain concept
Max. weight	200 g
Qualification status	Qualified for all major aircraft

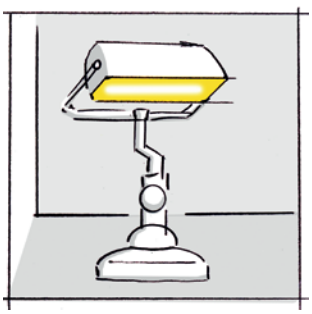
Feature lights

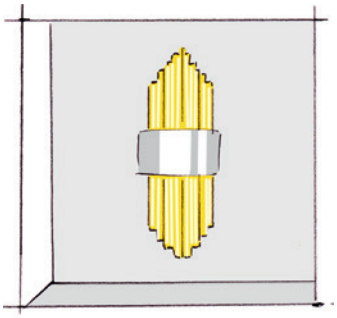
Feature lights are decorative seat lamps that are highly customized and individualized to every customer. SCHOTT provides feature lights upon request. We work closely with the airlines, designers and seat manufacturers to create the perfect feature light for our customers.











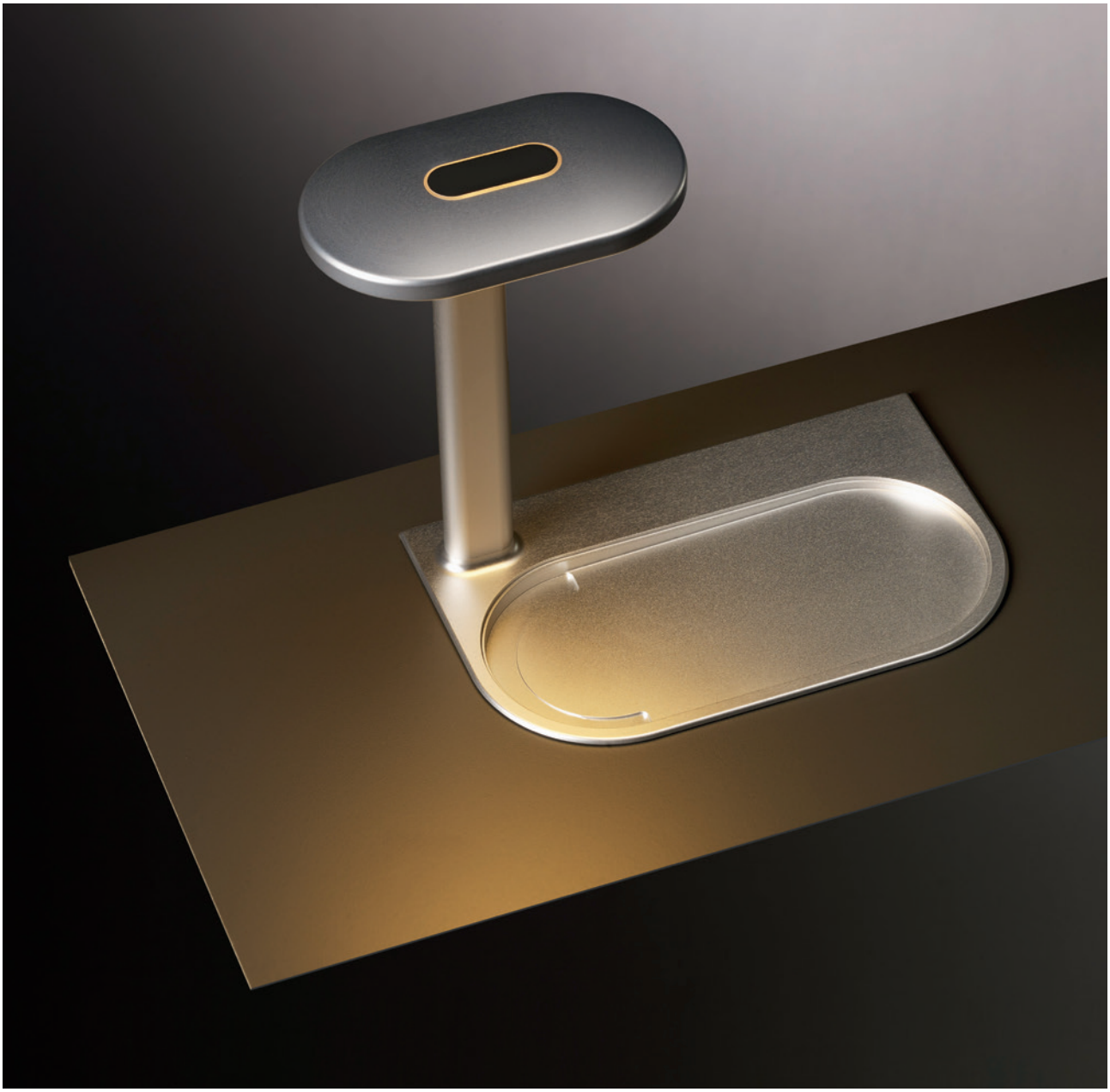


Table Lighting

Ambient Lighting

Functional Lighting

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