

# ContiLED



## Continuous LED line for tunnel lighting

ContiLED is designed to provide a beneficial alternative to luminaires fitted with fluorescent lamps for continuous line lighting in tunnels and underpasses.

It not only provides the required lighting levels with significant energy savings but also great visual comfort to guide motorists safely.

ContiLED is an IP 66 sealed optical unit, offering variable combinations of modules equipped with 8 to 64 LEDs and various optics, to be combined with a remote driver box. It has been designed to meet the specific needs of many different tunnel applications.

The LED modules are located on an internal slider, which can be easily removed, allowing replacement at the end of its service life in order to take advantage of future technological improvements.



## Concept

ContiLED is a strategic asset for the base lighting of a tunnel. It is composed of robust materials – an anodised extruded aluminium profile and a glass protector – making it highly resistant to shocks and corrosion within harsh tunnel environments.

ContiLED offers two options for continuous lighting; the proven LensoFlex®2 solutions with modular LED quantities and the ContiFlex™ linear photometric engine for a perfect uninterrupted linear effect.

The LED drivers are placed externally, either in a central cabinet inside the tunnel or in a separate OMNIbox. One OMNIbox can serve multiple ContiLED luminaires. All the LEDs inside are placed in a series and the number of LEDs can vary per luminaire depending on the project requirements.

The tool free QPD connectors can take place on the end caps, either in a straight position when multiple units are placed in a daisy chain, or on the side of the end cap, when a back-to-back position with minimal spacing is required.

The ContiLED range (only the LensoFlex®2 version with 32 LEDs and more) has been developed to enable constant dimming with an optimised power factor and efficacy. Designed with two electronic circuits, each ContiLED can either be dimmed completely, partially or even have 50% of its LEDs switched off. In addition to maximising energy savings, this possibility also extends the lifetime of the complete installation and reduces the need for disruptive maintenance.



ContiLED is available with two different photometric concepts: LensoFlex®2 with separate modules of 4 LEDs or ContiFlex™ as a continuous single line of LEDs.



ContiLED is designed for surface mounting with dedicated adjustable brackets.

## Types of application

- TUNNELS & UNDERPASSES

## Key advantages

- High visual comfort through continuous line lighting
- 2 photometrical concepts: LensoFlex®2 and ContiFlex™
- Flexible solution: extruded aluminium profile to adjust number of LEDs for tunnel requirements
- Maximised savings in energy and maintenance costs
- Control system can be integrated into a tunnel backbone system



ContiLED is equipped with quick-on QPD connectors.



One OMNIbox can serve multiple ContiLED optical units.



ContiFlex™

ContiFlex™ is a linear photometric engine with high-power LEDs designed to meet the need for a perfect uninterrupted lighting effect.

This platform relies on Schröder expertise in providing highly efficient lighting distributions with various dedicated optics, quantities of LEDs and driving currents.



LensoFlex®2

LensoFlex®2 is based upon the addition principle of photometric distribution. Each LED is associated with a specific PMMA lens that generates the complete photometric distribution of the luminaire. The number of LEDs in combination with the driving current determines the intensity level of the light distribution.

The proven LensoFlex®2 concept includes a glass protector to seal the LEDs and lenses into the luminaire body.



## Advanced Tunnel Solution (ATS)

The ATS (Advanced Tunnel Solution) is a control system that manages luminaire controllers (Lumgates) to deploy pre-defined lighting scenarios or to take charge of the lighting installation at any moment.

The ATS controller can operate as a standalone unit or can be linked to the main tunnel control system to interact with features not directly related to lighting (traffic management, ventilation, fire detection etc.).



## Luminance meter (L20)

The luminance meter measures the luminance provided by natural light in the access zone from the safe stopping distance. It sends the data to the ATS control system that adjusts the lighting levels to avoid any visual adaptation problems.



## Lumgate

The Lumgate is an RS485 closed-loop device connected to the luminaire drivers to control the light intensity and provide command/reporting features.

One Lumgate can control several optical units.



## Tunnel Control System (TCS)

The Tunnel Control System (TCS) is a gateway ensuring the connection/control of the multiple ATS controllers as well as the communication with the central management system of the tunnel infrastructure (SCADA) if applicable.



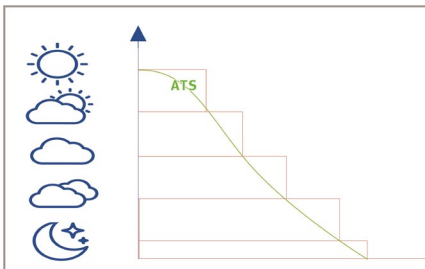


Jointly developed by Schröder and Phoenix Contact, the Advanced Tunnel Solution (ATS) has been designed to control every lighting point or clusters of luminaires to perfectly adapt the lighting level according to conditions in the

tunnel, to monitor the power consumption and to report the burning hours or any failure to facilitate maintenance. The system includes a self-commissioning feature and enables scenarios to be adapted remotely at any moment.

## PRECISE AND CONTINUOUS DIMMING

ATS provides 25 different dimming levels to precisely adapt the lighting to the real needs. Without any over-lighting, the energy consumption is limited to what is absolutely necessary to ensure safe and comfortable driving conditions.



## FLEXIBILITY

Flexible redundancy offers security on multi-level applications, not only for the lighting.

## PLUG AND PLAY COMMISSIONING

The tunnel lighting study can be directly imported into the ATS control system.

This unique feature, in combination with the auto-addressing of the Lumgates, leads to an extremely short commissioning time once the fixtures have been installed.

Each luminaire or cluster of luminaires is attributed the precise dimming profile linked to its position and characteristics.

## INTERACTION WITH THIRD PARTY SYSTEMS

Every command or signal sent to or coming from a tunnel component (emergency exit, smoke extraction system, traffic management system...) can be used to trigger a responsive lighting scenario. All of the tunnel equipment can be controlled through the same bus command.

## MAXIMISED SAFETY

The system enables the easy set-up of emergency and disaster management scenarios.

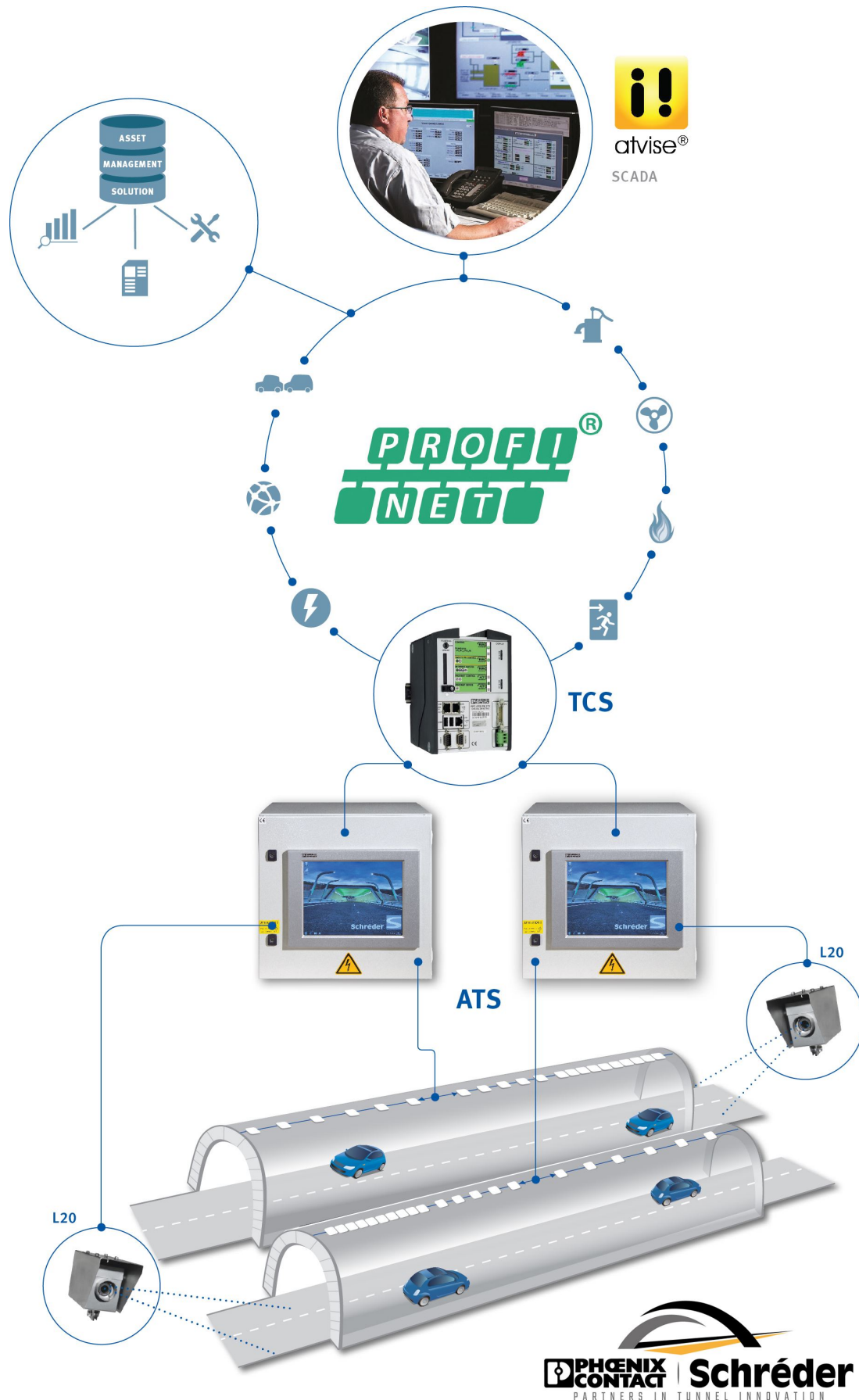
## ADAPTIVE LIGHTING ACCORDING TO SPEED

The ATS can be linked to a traffic monitoring system to obtain data regarding speed or density to adapt the lighting level according to safety standards. This option further reduces energy consumption and increases the lifetime of the installation while ensuring the best driving conditions for motorists.



## ADAPTIVE LIGHTING ACCORDING TO POLLUTION

Based on cleaning cycles, the ATS can take into account the depreciation of the flux due to dirt accumulation to continuously provide the requested lighting level in the tunnel. No more, no less. This feature offers additional energy savings while providing safety and comfort for users.



## GENERAL INFORMATION

Driver included	No
CE Mark	Yes
ENEC certified	Yes
ROHS compliant	Yes
Testing standard	LM 79-08 (all measurements in ISO17025 accredited laboratory)

## HOUSING AND FINISH

Housing	Aluminium
Optic	PMMA
Protector	Tempered glass
Tightness level	IP 66
Impact resistance	IK 08

## OPERATING CONDITIONS

Operating temperature range (Ta)	-30 °C up to +45 °C / -22 °F up to 113 °F
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*· Depending on the luminaire configuration. For more details, please contact us.*

## ELECTRICAL INFORMATION

Control protocol(s)	1-10V, DALI
Control options	Lumgate, Remote management
Associated control system(s)	Advanced Tunnel Solution (ATS)

*· Electrical information given for the gear box*

## OPTICAL INFORMATION

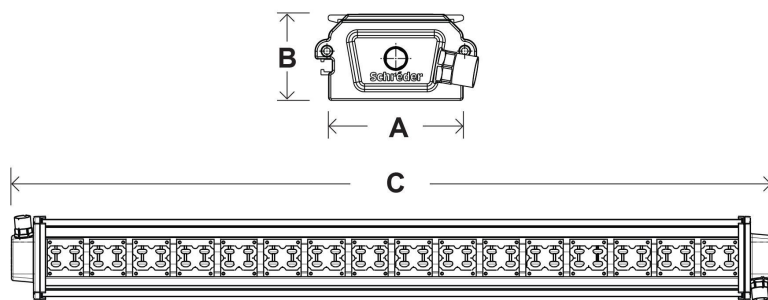
LED colour temperature	4000K (Neutral White 740)
Colour rendering index (CRI)	>70 (Neutral White 740)

## LIFETIME OF THE LEDS @ TQ 25°C

All configurations	100,000h - L90
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## DIMENSIONS AND MOUNTING

AxBxC (mm   inch)	CONTILED 1 - 124x67x602   4.9x2.6x23.7 CONTILED 2 - 124x67x1202   4.9x2.6x47.3
Weight (kg   lbs)	CONTILED 1 - 7   15.4 CONTILED 2 - 14   30.8
Mounting possibilities	Surface mounting







Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Neutral White 740		Power consumption (W)		Luminaire efficacy (lm/W)	
			Min	Max	Min	Max	Up to	Photometry
CONTILED 1	8	350	1000	1100	8	8	138	
	8	500	1400	1500	11	11	136	
	8	700	1900	2000	16	16	125	
	12	350	1500	1700	12	12	142	
	12	500	2000	2300	15	15	153	
	12	700	2700	3100	24	24	129	
	16	350	2000	2300	16	16	144	
	16	500	2700	3100	23	23	135	
	16	700	3600	4100	32	32	128	
	24	350	3200	3500	24	24	146	
	24	500	4400	4700	34	34	138	
	24	700	5700	6200	48	48	129	
	32	350	4300	4700	31	31	152	
	32	500	5800	6300	45	45	140	
	32	700	7600	8200	64	64	128	

Tolerance on LED flux is  $\pm 7\%$  and on total luminaire power  $\pm 5\%$



Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Neutral White 740		Power consumption (W)		Luminaire efficacy (lm/W)	
			Min	Max	Min	Max	Up to	Photometry
CONTILED 2	8	350	1000	1200	8	8	150	
	8	500	1400	1600	11	11	145	
	8	700	1900	2100	16	16	131	
	16	350	2100	2300	16	16	144	
	16	500	2900	3100	23	23	135	
	16	700	3800	4100	32	32	128	
	24	350	3200	3600	24	24	150	
	24	500	4400	4900	32	32	153	
	24	700	5700	6500	48	48	135	
	32	350	4300	4800	31	31	155	
	32	500	5800	6600	45	45	147	
	32	700	7600	8700	64	64	136	
	40	350	5400	5900	39	39	151	
	40	500	7300	7900	57	57	139	
	40	700	9500	10300	80	80	129	
	48	350	6500	7100	51.5	51.5	138	
	48	500	8800	9500	74	74	128	
	48	700	11400	12400	104	104	119	
	56	350	7600	8200	55	55	149	
	56	500	10300	11100	80	80	139	
	64	350	8700	9400	67.5	67.5	139	
64	500	11700	12700	97	97	131		
64	700	15200	16500	138	138	120		

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

