

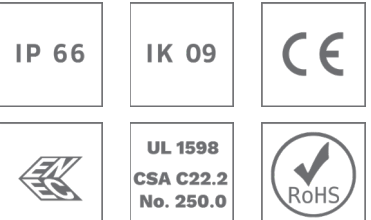
TFLEX STS BASE



Base luminaire for tunnels with highly corrosive environments

TFLEX STS BASE is part of the TFLEX stainless steel lighting solutions, offering a reliable luminaire optimised for base tunnel lighting needs in highly corrosive environments. Its high-grade stainless steel materials ensure a long-lasting, low-maintenance solution, even under the most extreme conditions. Its ingenious heat sink concept allows optimised thermal dissipation, resulting in higher photometrical performance.

Equipped with the latest tunnel optics and control technologies, TFLEX STS BASE ensures high visual performance and optimised lighting management for the safest driving experience in tunnels.



Concept

TFLEX STS BASE is a corrosion-proof luminaire designed to deliver standard lighting needs for tunnel zones such as the entrance, interior zone and exit.

With TFLEX STS tunnel solutions, BASE does not mean minimal. TFLEX STS BASE is a complete, versatile tunnel solution integrating the latest optical and remote-control technologies. It is equipped with LensoFlex® photometric engines, fitted with high-power LEDs, to always provide the best performance and visibility inside the tunnel. In combination with dedicated tunnel optics, TFLEX STS BASE ensures optimised lighting levels on road and wall surfaces, while providing high visual comfort and unrivalled uniformity.

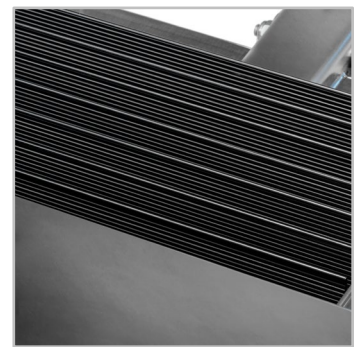
The body of the luminaire is made of a highly resistant stainless steel alloy (AISI 316L/1.4404 or 316TI/1.4571) perfectly suited to withstanding extreme tunnel conditions. Its heat sink concept ensures optimum heat dissipation, thereby extending the lifetime of the devices and improving photometric performance. The LED modules are physically separated from heat sensitive parts such as the drivers.

TFLEX STS BASE materials are durable and 100% recyclable, making it a long-lasting, maintenance-reduced lighting solution. With a tool-free philosophy for opening/closing and smart cabling, TFLEX STS BASE facilitates installation and maintenance operations to minimise costs and traffic disruption.

TFLEX STS BASE is a complete lighting solution. It integrates the latest tunnel control technologies, enabling precise remote dimming and switching, constant installation monitoring, and commissioning to improve safety for drivers in any situation.



TFLEX STS BASE is made of a highly corrosion-resistant stainless steel alloy, to provide a reliable lighting solution in the most extreme tunnel environments.



Available with two types of heat sink, TFLEX STS BASE adapts to the local requirements of each type of tunnel.

TYPES OF APPLICATION

- TUNNELS & UNDERPASSES

KEY ADVANTAGES

- Compact, lightweight and easy to install
- Made of high-grade anti-corrosive stainless steel
- Optimised thermal dissipation that results in higher photometrical performance
- Designed for long-lasting performance
- Tool-free access for easy maintenance
- LensoFlex®4 versatile solutions for high-end photometries maximising comfort and safety



Tool-free opening and closing system for fast and easy access to the gear compartment.



TFLEX STS BASE can be equipped with toolless connectors to considerably speed up installation as well as any future maintenance.

TFLEX STS BASE | Heat sink with fins (HD version)

TFLEX STS BASE | Flat heat sink

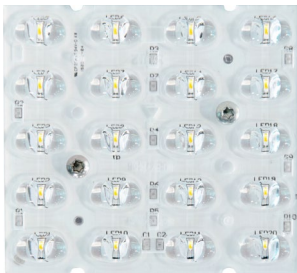




LensoFlex®4

LensoFlex®4 maximises the heritage of the LensoFlex® concept with a very compact yet powerful photometric engine based upon the addition principle of photometric distribution. The number of LEDs in combination with the driving current determines the intensity level of the light distribution. With optimised light distributions and very high efficiency, this fourth generation enables the products to be downsized to meet application requirements with an optimised solution in terms of investment.

LensoFlex®4 optics can feature backlight control to prevent intrusive lighting, or a glare limiter for high visual comfort.



Advanced Tunnel System 4 (ATS 4)

The ATS 4 (Advanced Tunnel System 4) is a powerful tunnel lighting control system for precise remote dimming and switching of each individual connected luminaire, based on various tunnel parameter inputs (emergency exits, smoke extraction system, traffic cameras, etc.).

The ATS 4 permanently communicates with the Lumgates, an RS422 closed-loop device connected to the luminaire drivers, to control the light intensity and provide command/reporting features.



Advanced Tunnel System 4 DALI (ATS 4 DALI)

The Advanced Tunnel System 4 DALI provides the essential functions of the ATS 4 over a DALI network protocol, enabling dimming of luminaire clusters to be controlled collectively.

The ATS 4 DALI is the ideal solution to implement a reliable and powerful tunnel lighting control system with streamlined features and optimised costs.



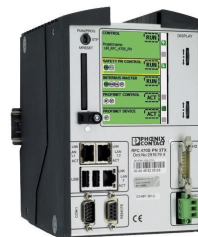
Sensors and cameras

The ATS 4 can be connected to various sensors and cameras to permanently adjust the lighting levels to indoor and outdoor conditions and avoid any visual adaptation problems.



Tunnel Control System 4 (TCS 4)

The Tunnel Control System 4 (TCS 4) is a gateway ensuring the connection/control of the multiple ATS 4 controllers as well as the communication with the central management system of the tunnel infrastructure (SCADA) if applicable.



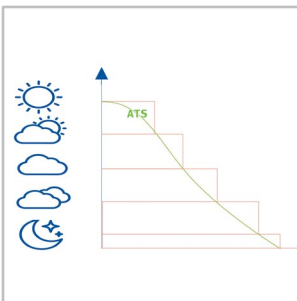
Jointly developed by Schröder and Phoenix Contact, the Advanced Tunnel System 4 (ATS 4) has been designed to control every lighting point or clusters of luminaires to perfectly adapt the lighting level according to conditions in the tunnel, to monitor the power consumption and to report the burning hours or any failure to facilitate maintenance. The system includes a self-commissioning feature and enables scenarios to be adapted remotely at any moment.

ADAPTIVE LIGHTING ACCORDING TO SPEED



The ATS 4 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.

PRECISE AND CONTINUOUS DIMMING



ATS 4 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.

ADAPTIVE LIGHTING ACCORDING TO POLLUTION

Based on cleaning cycles, the ATS 4 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.

FLEXIBILITY

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

PLUG AND PLAY COMMISSIONING

This control system is easy to install and configure. The tunnel lighting study can be directly imported into the ATS 4 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.

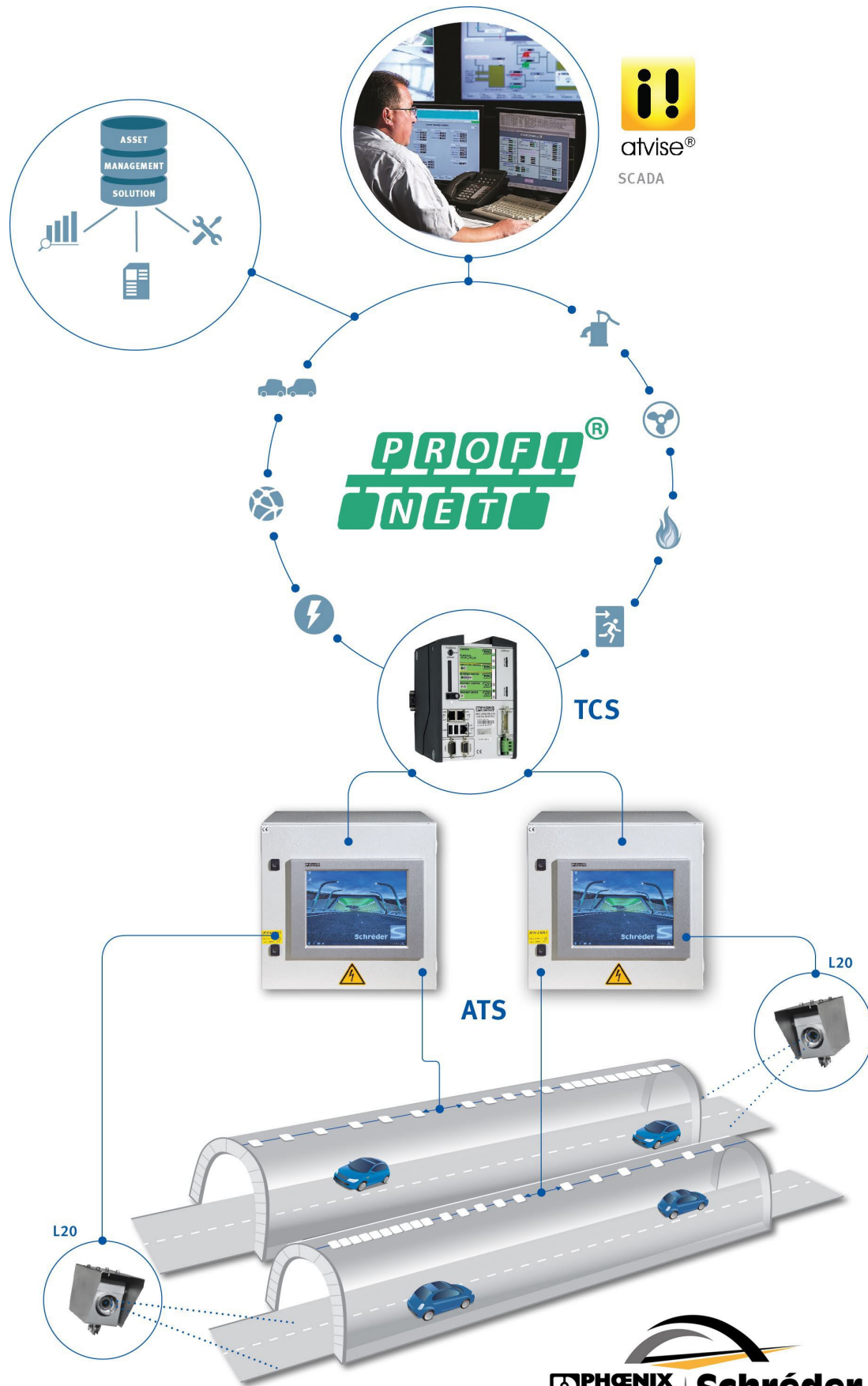
The ATS 4 benefits from a complete set of toolless smart cables and connectors, allowing installers to speed up cabling and save valuable time on-site.

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.



GENERAL INFORMATION

Recommended installation height	3m to 7m 10' to 23'
Circle Light label	Score ≥90 - The product fully meets circular economy requirements
CE mark	Yes
ENEC certified	Yes
UL certified	Yes
ROHS compliant	Yes
Testing standard	EN 60598-1 EN 62262 UL 1598 IEC 62493 IEC 62471

HOUSING AND FINISH

Housing	Stainless steel (AISI 316L / 1.4404 or 316TI / 1.4571)
Optic	PMMA
Protector	Tempered glass
Tightness level	IP 66
Impact resistance	IK 09
Vibration test	Compliant with ANSI C 136-31 standard, 3G load Compliant with modified IEC 68-2-6 (0.5G)
Access for maintenance	Tool-less access to gear compartment

OPERATING CONDITIONS

Operating temperature range (Ta)	-30°C up to +55°C / -22°F up to 131°F with wind effect
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· Depending on the luminaire configuration. For more details, please contact us.

ELECTRICAL INFORMATION

Electrical class	Class 1 US, Class I
Nominal voltage	220-240V AC – 50-60Hz 347-480V – 50-60Hz 277V – 50-60Hz
Surge protection options (kV)	10 20
Electromagnetic compatibility (EMC)	EN 55015 / EN 61000-3-2 / EN 61000-3-3 / EN 61547
Control protocol(s)	1-10V, DALI
Control options	Lumgate, Remote management
Associated control system(s)	Advanced Tunnel System 4 (ATS 4) Advanced Tunnel System 4 DALI (ATS 4 DALI)

OPTICAL INFORMATION

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

LIFETIME OF THE LEDS @ TQ 25°C

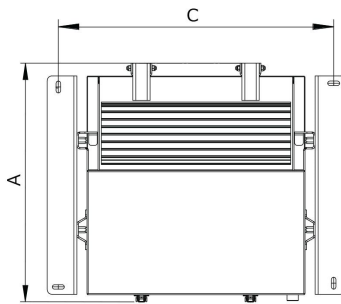
All configurations	100,000h - L95 (high-power LEDs)
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· Lifetime may be different according to the size/configurations. Please consult us.

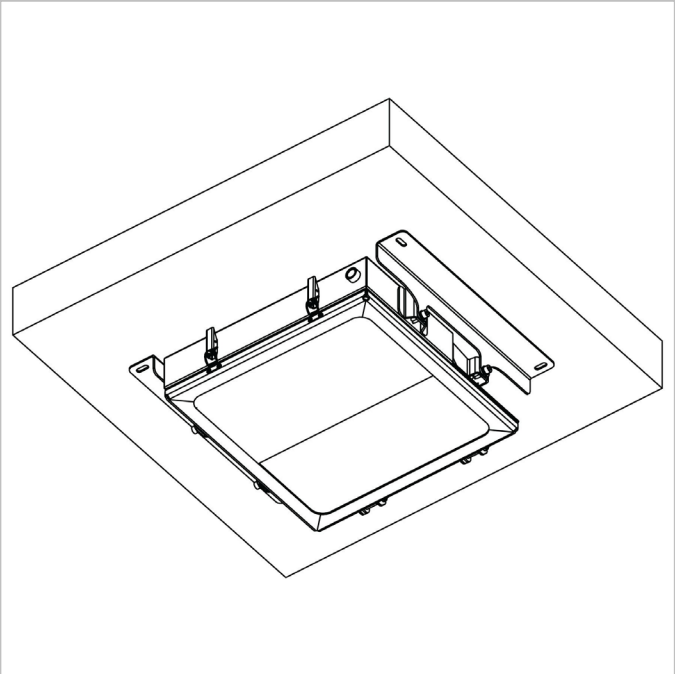
DIMENSIONS AND MOUNTING

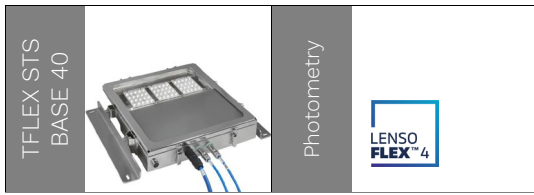
AxBxC (mm inch)	TFLEX STS BASE 40 : 481x116x556 18.9x4.6x21.9 TFLEX STS BASE HD40 : 481x116x556 18.9x4.6x21.9
Weight (kg lbs)	TFLEX STS BASE 40 : 10.0 22.0 TFLEX STS BASE HD40 : 12.0 26.4
Mounting possibilities	Surface mounting Wall-mounted

· For more information about mounting possibilities, please consult the installation sheet.



TFLEX STS BASE | Surface mounting with fixed brackets





	Luminaire output flux (lm)		Power consumption (W)		Luminaire efficacy (lm/W)
	Neutral White NW 740		Min	Max	
Number of LEDs	Min	Max	Min	Max	Up to
20	3100	6100	23	46	156
40	6200	12300	44	91	164
60	9400	18500	64	133	167

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



	Luminaire output flux (lm)		Power consumption (W)		Luminaire efficacy (lm/W)
	Neutral White NW 740		Min	Max	
Number of LEDs	Min	Max	Min	Max	Up to
20	3000	6400	23	46	160
40	6100	12800	44	89	168
60	9100	19300	64	135	172

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