PHILIPS

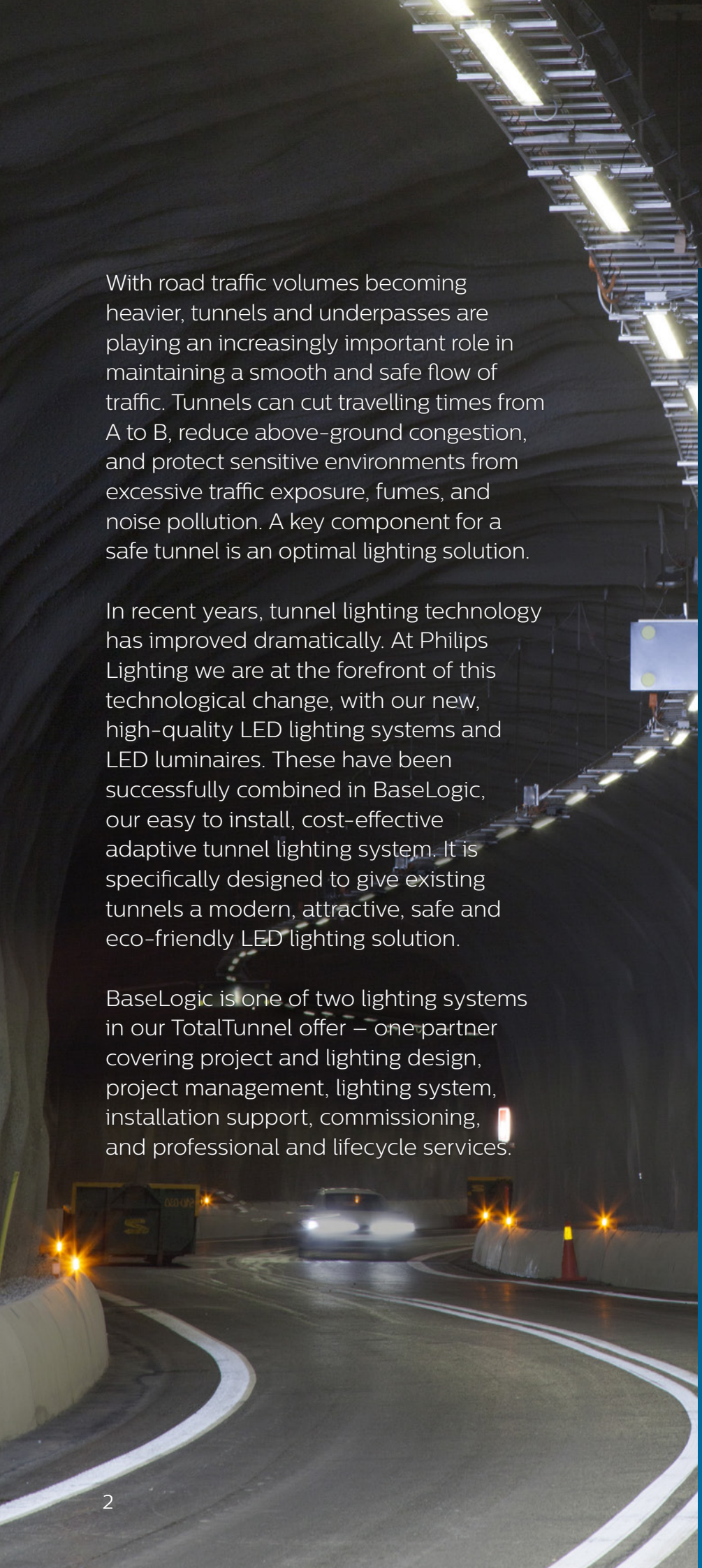
*Base*Logic

Tunnel lighting

LED

# Easy and cost-effective

## refurbishment of your tunnel lighting



With road traffic volumes becoming heavier, tunnels and underpasses are playing an increasingly important role in maintaining a smooth and safe flow of traffic. Tunnels can cut travelling times from A to B, reduce above-ground congestion, and protect sensitive environments from excessive traffic exposure, fumes, and noise pollution. A key component for a safe tunnel is an optimal lighting solution.

In recent years, tunnel lighting technology has improved dramatically. At Philips Lighting we are at the forefront of this technological change, with our new, high-quality LED lighting systems and LED luminaires. These have been successfully combined in BaseLogic, our easy to install, cost-effective adaptive tunnel lighting system. It is specifically designed to give existing tunnels a modern, attractive, safe and eco-friendly LED lighting solution.

BaseLogic is one of two lighting systems in our TotalTunnel offer – one partner covering project and lighting design, project management, lighting system, installation support, commissioning, and professional and lifecycle services.


# Why refurbish a tunnel?

The key driver for tunnel lighting refurbishment is to replace an aging installation with LED lighting and controls to improve tunnel safety, comfort and compliancy, while reducing operational costs through saving energy. Savings are immediate too, so return on investment is quick.

In terms of safety and comfort, LED technology allows flexible adjustment of the ambient and entrance luminance. This avoids a black hole effect when entering a tunnel on a bright day.

In terms of energy saving, LED lighting is dimmable when full brightness is not required in the tunnel. Dimming can cut energy consumption by as much as 25%. Further energy savings are possible through the combination of LED lighting and controls, which together can reduce energy consumption by up to 70%.

# Contents

No new
wiring

No new
infrastructure

# BaseLogic

## Easy and cost-effective control of LED tunnel lighting

**BaseLogic** is a basic monitoring and step dim adaptive tunnel lighting system from Philips Lighting. Targeted mainly at existing tunnels needing a higher quality lighting system, it forms part of the Philips TotalTunnel offer. BaseLogic requires only limited capital expenditure (CAPEX) and offers low operating expenses (OPEX), while maintaining the traditional high quality performance that positions Philips Lighting as the leader in the tunnel lighting industry.

A major advantage of the system is that it removes the need for a new control infrastructure in refurbishment projects, by using the existing mains cables to the luminaires for communication of dimming commands. This significantly reduces installation time and costs. In addition, the luminaires are pre-programmed with system behavior and therefore do not require any additional control gear. The benefit is that you can install BaseLogic without in-depth expert knowledge.

BaseLogic is a modular networked lighting system with several options. You can select and install only those system components that are necessary to optimize your tunnel lighting. It can be installed as a standalone control system or it can be fully driven by a schedule and/or sensors. For tunnel operators interested in status reporting or manual control, BaseLogic is an open system and can be integrated into a SCADA tunnel management system for remote monitoring and control.

**Requires limited capital expenditure**

**Offers low operating expenses**

**Easy installation no new cabling needed**

# Reduce

## operating and maintenance costs

To ensure a tunnel or underpass continues to operate optimally and promote the smooth and safe flow of traffic, tunnel owners, operators and maintenance companies need to be quickly informed about the real-time condition of the lighting system. BaseLogic provides basic active health monitoring and fault notification, allowing corrective actions `to be taken immediately. The tunnel's safety and comfort levels are maintained, while operating and maintenance costs are reduced.

# Suitable
## for a wide range of applications

**BaseLogic** is ideal for all tunnels and underpasses. These range from standalone short underpasses driven by day or night schedules, to multi-zone road tunnels driven by the brightness of the environment.
In all these applications, integration with a tunnel management system is possible.

**BaseLogic** is specifically targeted at existing tunnels with aging lighting that needs to be made more efficient, cost-effective and environmentally friendly.

Built-in flexibility and modularity make BaseLogic suitable for all types of underpasses and tunnels.

Underpasses

Tunnels

Multi-zone tunnels

# What challenges are you facing ...

## ...as a tunnel owner?

*"Every tunnel is unique. Can you reassure me that BaseLogic is suitable for my specific tunnel?"*

Through **high flexibility and modularity** in cabinet configuration, BaseLogic is suitable for simple, short underpasses to long road tunnels with multiple zones. Its cost-effective point source and linear LED lighting configurations, with a **wide range of optic**s, fit all types of tunnels.

*"I need a lighting system to improve my tunnel's energy management and environmental footprint"*

The inherent **energy efficiency of LEDs**, combined with luminaires equipped with **smart drivers to enable dimming**, reduce the energy consumption and environmental impact of BaseLogic.

*"For me, the bottom line is the investment cost"*

BaseLogic offers an **attractive initial investment.**
It's designed for retrofit.

*"I don't have the budget to install new cabling infrastructure"*

You don't need the budget, because **you don't need to install new cabling** – the system makes use of existing mains cabling. BaseLogic is specifically designed for refurbishment of existing aging tunnels.

## ... as a tunnel operator?

*"I need to know the status of the tunnel lighting system at all times of the day – and night"*

BaseLogic can be **integrated into a tunnel management system** for remote monitoring and control.

*"My over-riding concern is the safety of motorists passing through the tunnel. How can BaseLogic help?"*

Through **system redundancy** and **fall-back scenarios** in case of failure, plus **manual override control** to boost lighting to 100% in case of emergencies. BaseLogic ensures that traffic flow through the tunnel is smooth and safe, and as free from accidents and disruptions as possible.

## ... as a tunnel user?

## ...as a tunnel installer?

*"The city or highway authorities would hesitate to agree to a lengthy closure of a tunnel – it would lead to unacceptable traffic congestion"*

BaseLogic is **quick and easy to install**. Tunnel closure is limited to the shortest possible time. This ensures that project costs and traffic disruption are kept to the minimum.

*"In my experience, commissioning of a tunnel lighting system is a major hurdle – and the main cause of delays"*

BaseLogic's luminaires are **commissioning-free and pre-programmed**. They remove any necessity for address programming and come with a **quick release bracket** for fast and easy installation. Remaining configuration is prepared in advance and only has to be loaded to complete commissioning. This streamlines and speeds up the whole commissioning process.

*"Retrofit? That means a whole lot of rewiring!"*

With BaseLogic, **no new communication wiring** needs to be installed throughout the tunnel. What's more, **no additional controls** need to be installed at the luminaire location. All cabinet **control components are DIN rail mountable**, which further simplifies and speeds up installation.

## ... as a tunnel maintenance supervisor?

*"I need to be informed immediately of a problem with the tunnel lighting system so that I can dispatch my maintenance crew to the exact location, to fix it quickly and efficiently"*

**Basic failure monitoring** and **instant fault notification** enable timely action to prevent incidents due to failures. There are no components at the luminaire location that can result in additional failures.

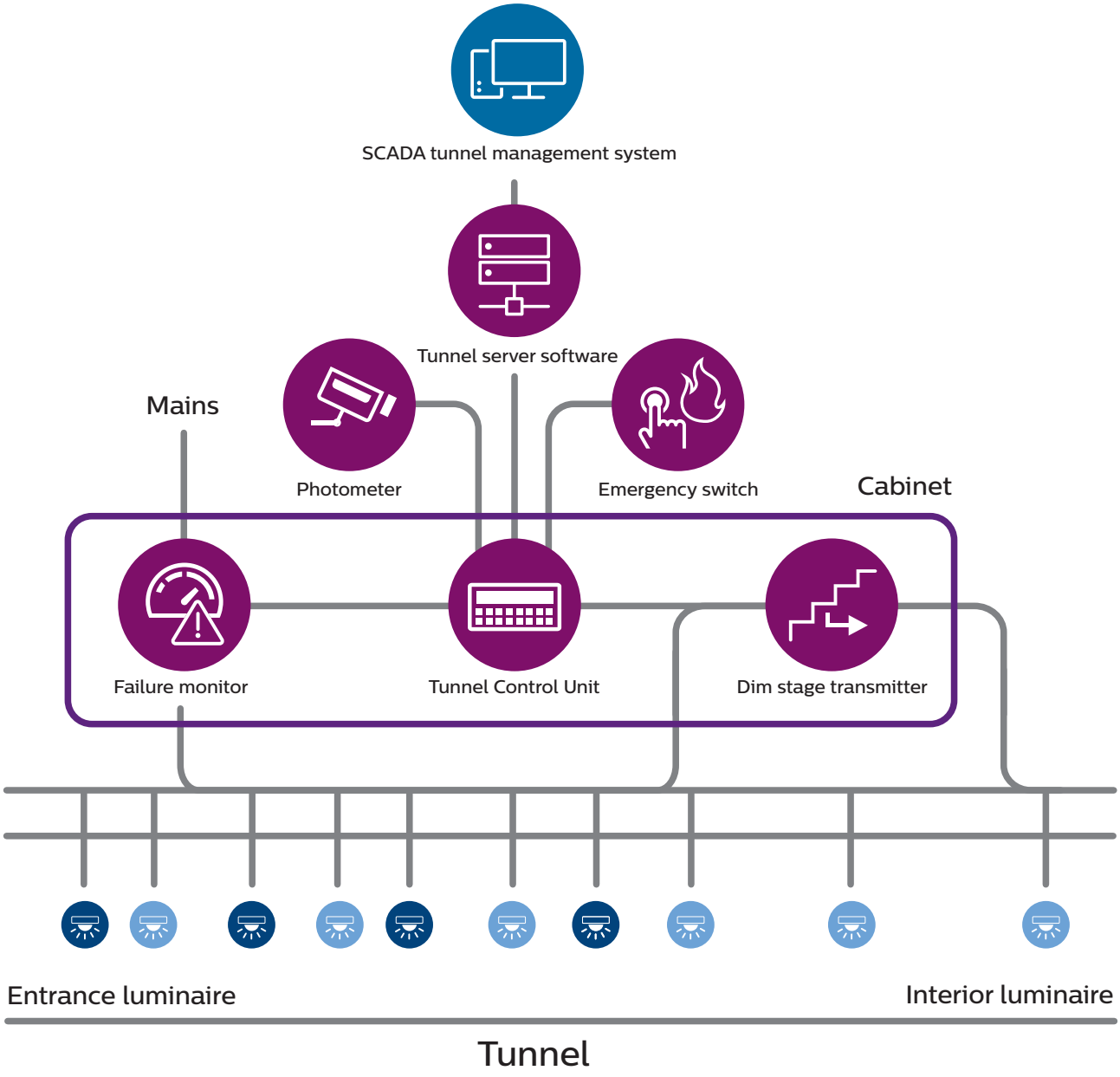
*"How can I assure my maintenance team that the lighting system is safe to work on?"*

A **manual power switch** in the cabinet switches the whole tunnel lighting off for safe maintenance work.

*"I'm always anxious about driving into a tunnel. I feel unsafe for those few seconds it takes for my eyes to adjust to the tunnel lighting"*

BaseLogic's **automatic dimming control** eases adaptation of the eyes for maximum safety and comfort. Other features of LED lighting which maximize comfort and safety include **natural color tone** and **homogenous road lighting**.

# System control network



**SCADA tunnel management system**
An integrated tunnel management system that remotely controls and monitors one or more tunnel control units and all other tunnel traffic and incident systems. BaseLogic server software is required as interface.

**Failure monitor**
Monitors the light level drop in the connected mains circuit. Should the light level drop below the configured threshold, then the failure monitor unit sends the detected failure to the TCU.

**Tunnel server software**
The BaseLogic software is installed on the customer's tunnel control server to offer an open interface (API) with a SCADA tunnel management system for remote control and monitoring. The software is also required to connect multiple TCUs.

**Tunnel Control Unit (TCU)**
Translates multiple inputs into warning/failure events (monitoring) and/or lighting stages (control).

**Photometer**
Measures luminance level of tunnel entrance and sends it to the TCU as input.

**Dim stage transmitter**
Broadcasts a dim stage defined by the TCU to the luminaires via the via the mains wires using a transformer.

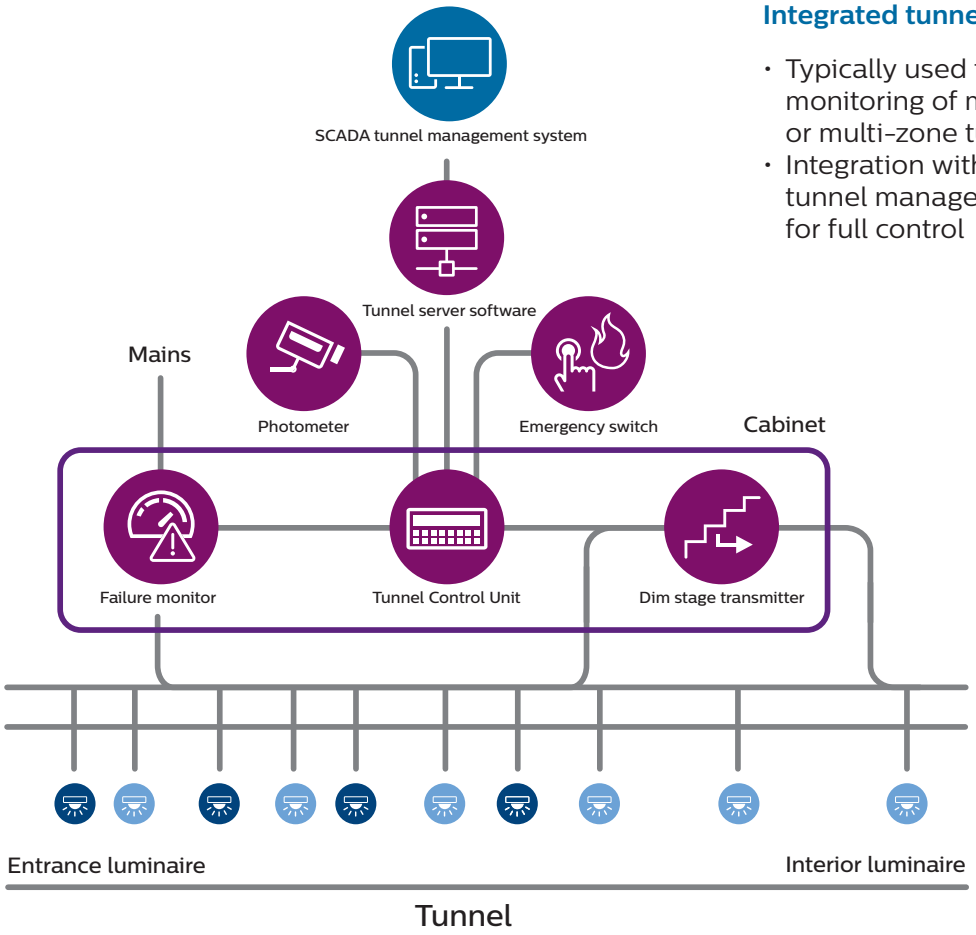
**Emergency switch**
This emergency override switch is a digital input that forces the full tunnel lighting to the maximum light level in case of emergency situations, such as accidents.

**LED luminaires**
Pre-programmed entrance and interior LED luminaires compatible with BaseLogic. Each luminaire is programmed with specific dimming behavior (for zone dimming supporting 12 stages).

# Customize
## your tunnel lighting system

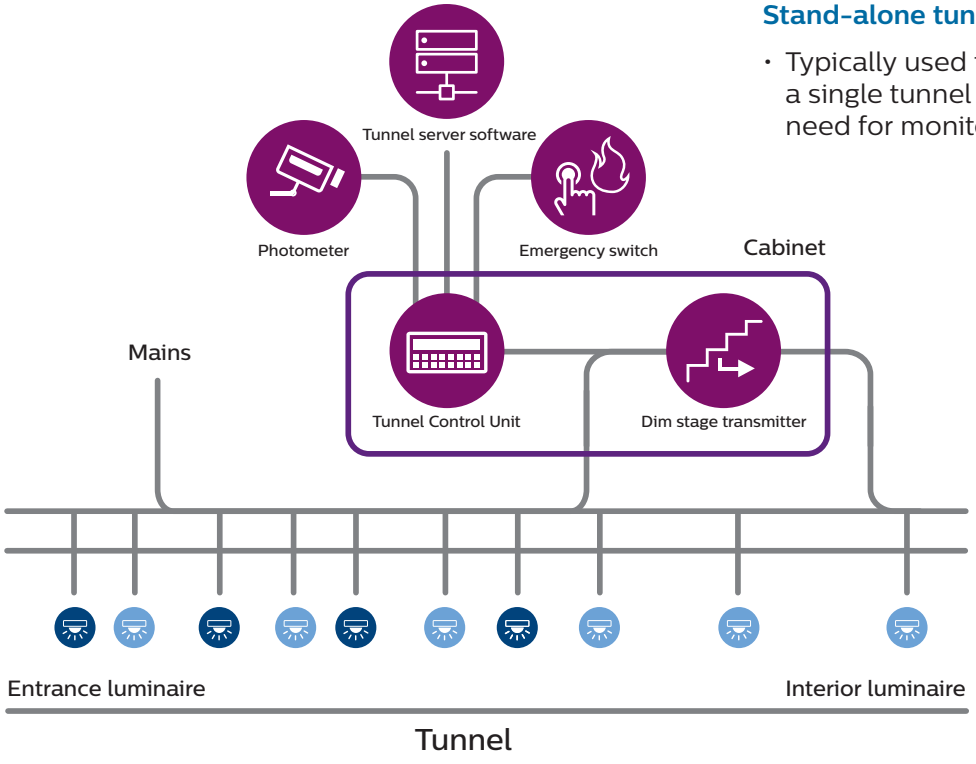
**Choose the configuration**
to match your tunnel needs

Different tunnels and underpasses demand different tunnel lighting configurations. With BaseLogic you have a flexible tunnel lighting system that can be tailor-made to your specific project requirements. Here are some examples of how you can build your own configuration, matching your tunnel or underpass.




## Integrated tunnel configuration

- Typically used for control and monitoring of more tunnels or multi-zone tunnels
- Integration with SCADA tunnel management system for full control




## Stand-alone tunnel configuration

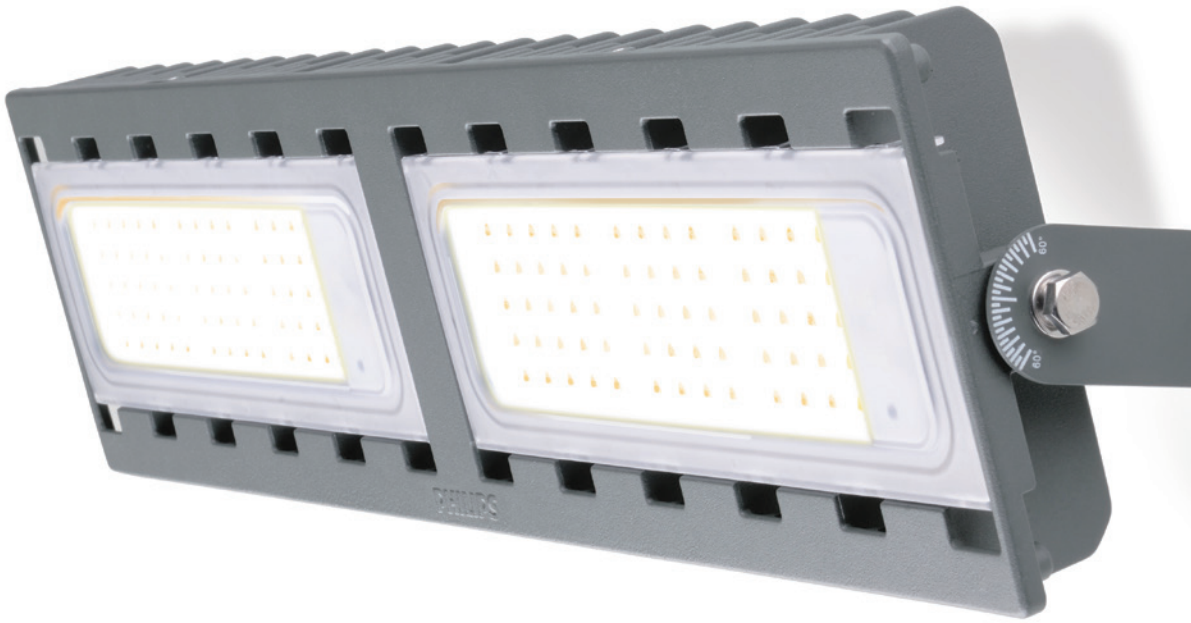
- Typically used for controlling a single tunnel without the need for monitoring

TubePoint luminaire

# Main specifications

## BaseLogic system specifications

| System feature | Specification |
|---|---|
| System control | DIN-rail mounted components, IP2x |
| | 110 – 277 V 3 phase mains compatible |
| | RS-485 L20 photometer driven input |
| | Digital input for Emergency Service Override |
| | 12 step Coded Mains dimming output |
| | Programmable night schedule |
| System monitoring | Current monitoring to detect luminaire outages |
| | Controls failure monitoring and redundancy |
| | Warning and alarm available via SCADA interface |
| | SCADA integration required |
| SCADA integration | Ubuntu (virtual) server, 2x 2 core 4Gb RAM |
| | Ethernet network connectivity to tunnel controls required |
| | SOAP XML interface for SCADA integration |
| Supported LED luminaires | Philips TubePoint, TubeLine, FlowBase |



FlowBase luminaire

## TubePoint luminaire

TubePoint is the result of years of experience in tunnel lighting, combined with the latest technologies developed by Philips. With its modular design and modern LED architecture, TubePoint is a versatile, cost-effective LED luminaire that meets the most stringent tunnel lighting requirements. It is made of highest-quality components that are dedicated for tunnels, thus ensuring a long lifetime, good performance and low maintenance costs. The efficiency of the optics means the number of luminaires can be reduced significantly compared with a conventional solution. And a high lumen per watt ratio at system level improves the total cost of ownership.

Read more about TubePoint.

## TubeLine luminaire

TubeLine is a state-of-the-art LED tunnel luminaire which offers all the benefits of linear lighting. With the latest LED technology, optimized dimensions and attractive pricing, linear lighting has never been more achievable within the constraints of limited budgets.

Read more about TubeLine.

## FlowBase luminaire

A lighting design that ensures safety and good visibility is a key element in the success of any tunnel project. FlowBase combines compact design, reliability, and affordability in one complete package to bring the perfect lighting solution for any tunnel application.

Read more about FlowBase.

**Please check with your Philips Lighting contact, which luminaires are available for your market.**

TubeLine luminaire




www.lighting.philips.com

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