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TotalTunnel system
Now light isn't just at
the end of the tunnel

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Introduction, challenges and trends

We keep vehicles, goods and economies moving

Some of our great reference projects



Highway 6 Yokneam Tunnel, Israel



Brisbane Inner City Tunnel, Australia



Valik Tunnel . Czech Republic



Treviglio Tunnel, Italy



Çamlica Tunnel, Turkey



Silkeborg Tunnel, Denmark



Ryfylke (Ryfast) Tunnel, Norway



De Zwerm Tunnel, The Netherlands

Challenges in tunnel lighting



Tunnels are becoming increasingly essential

Large, densely populated cities are increasingly relying on tunnels to reduce traffic congestion, improve logistics and free up valuable space.



Tunnel lighting must be safe and reliable

Tunnels should be safe and comfortable. Maintenance cycles should be limited to minimize the inconvenience of tunnel closures for drivers.



Lighting solutions should be sustainable

Strict environmental legislation is placing increasing demands on tunnel lighting solutions to be both sustainable and energy-efficient.



Financial constraints should also be met

Municipalities are facing tighter budget constraints, which increases the pressure to reduce costs.

Our world is changing – global trends shaping our business

Urbanization

The right light for ambience and safety

Resources

Energy efficiency with performance and sustainability

Mobility

Connected and self-driving vehicles





Urbanization

Tunnels are becoming integral to city branding

Tunnels are not just becoming safer; they are also integral to city branding. The right light can enhance a city's brand image and avoid monotonous environments.

Tunnel lighting can enhance safety and security

Light has the power to reduce mental strain on drivers by creating refreshing views that break up the monotony of long journeys.

Vulnerable tunnel users need to know how they are not alone and that their needs are taken into consideration. The right lighting can make them feel safe and visible to other users.

Lighting can give space back to citizens

Our project in Emmen, the Netherlands, demonstrates this concept beautifully. By creating an underpass for traffic, space was freed up above ground for citizens to enjoy.



Resource challenges

Cost-effective and energy-efficient tunnel operations optimize resources and have a smaller carbon footprint

A more energy-efficient and maintenance free tunnel infrastructure improves life for commuters. It also saves on energy, costs and carbon emissions without compromising safety.



Better mobility

Making mobility more sustainable

Sustainable mobility is a priority for cities and decision makers. More and more densely populated cities rely on tunnels to reduce traffic congestion by shortening travel distances. Tunnels create room for other modes of transport and allow vehicles to pass through safely 24/7 with a smaller environmental footprint.

TotalTunnel

TotalTunnel

TotalTunnel system is designed for both new-build tunnels and tunnel refurbishment.

With our global expertise in tunnel applications, we can create innovative solutions that enhance travel and safety, within a lighting infrastructure that delivers the best possible return on investment.





New build versus refurbishment

New build

For new builds, the TotalTunnel system provides:

- A safe, effective, energy efficient, compliant tunnel design with optimized installation costs
- A system that achieves new levels of operational efficiency
- A service maintenance program with close to 100% availability
- High level of on-going safe use with reduced operation costs
- On-going training and support for easy operations



Refurbishment

For tunnel refurbishments, the TotalTunnel system provides:

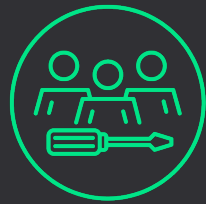
- A complete review of existing infrastructure via detailed audits, effective, energy-efficient and compliant design
- A system that achieves new levels of operational efficiency
- A service maintenance program with close to 100% availability
- High level of on-going safe use with reduced operation costs
- On-going training and support for easy operations

For all stakeholders

We are at the forefront of the industry and addresses the key issues in tunnel lighting and controls for all stakeholders:



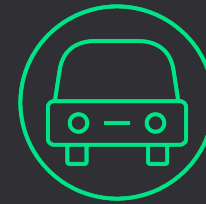
Tunnel owners and operators



Tunnel contractors and installers



Tunnel maintenance companies



Tunnel users (motorists)

A spotlight on four key benefits



Reduce costs

- Save up to 70% energy
- Lower maintenance costs
- Improve performance



Improve safety

- Meet the highest tunnel safety standards
- 100% compliant
- Keep traffic flowing
- Reduce accidents and tunnel closures



Enhance experience

- Excellent light quality improves visibility for drivers
- Uniform white LED light enhances driver comfort
- Aid safer travel with LED lighting



Optimize operations

- Fast installations reduce tunnel closure times
- LED technology for predictable operational expenses
- Controls and monitoring streamline operations
- Open architecture for 3rd party system integrations

TotalTunnel – our approach



We optimize your tunnel lighting system

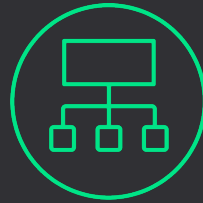
- I want a cost-effective tunnel solution tailored to my needs
- I want to meet standard tunnel regulations
- How can I ensure a safe tunnel driving experience?
- How do I ensure tunnel lighting is reliable with failsafe options?
- How do I improve tunnel energy efficiency without compromising on safety?
- How can I reduce tunnel operation costs?
- I want to monitor tunnel data for every light point so I can take timely preventive action before failures occur

Ready for the future

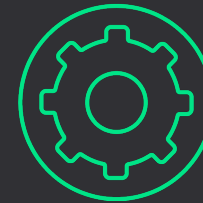
TotalTunnel is a complete lighting system and services approach to tunnel lighting



Tunnel luminaires



Dynamic lighting system



Services

Dynamic lighting systems

A lighting system

- That enables dynamic dimming based on L20
- That can be tailored to the site infrastructure and local lighting regulation

Benefits that reduce labor, traffic management and capital expenditure:

- End-to-end tailored dynamic control systems
- Optimized system features and design
- Energy savings due to precise L20 control and dynamic dimming control
- Single-source supplier
- Easy to install, use and maintain (plug and play)
- Integration with SCADA system
- High performance and system longevity to reduce operational costs and tunnel closures



Proposition overview

TunneLogic is fully optimized for DALI components and LED technology

TunneLogic (DALI based single light point management)

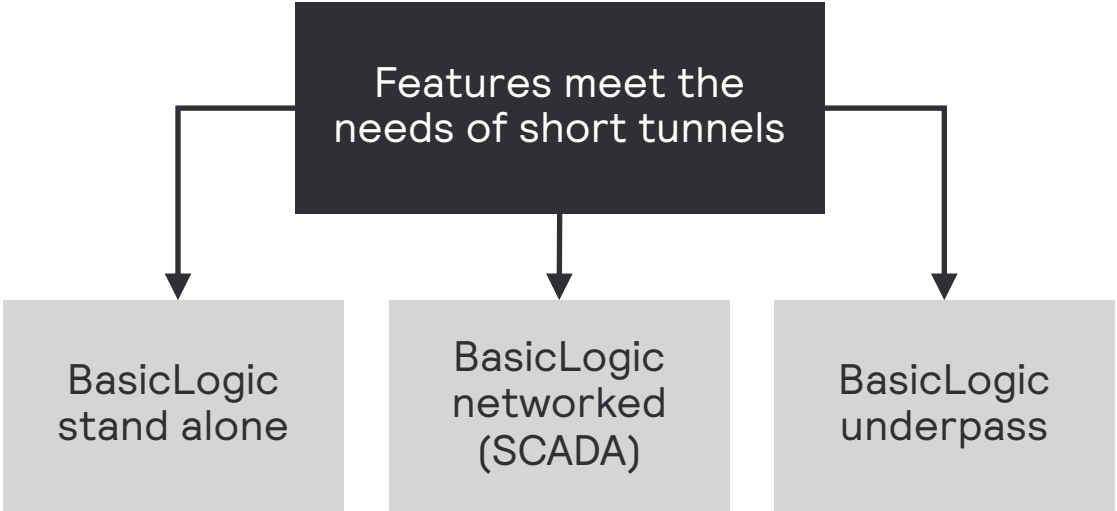
High end solution with better control and monitoring options

Individual light point management

Rich user interface for tunnel operator

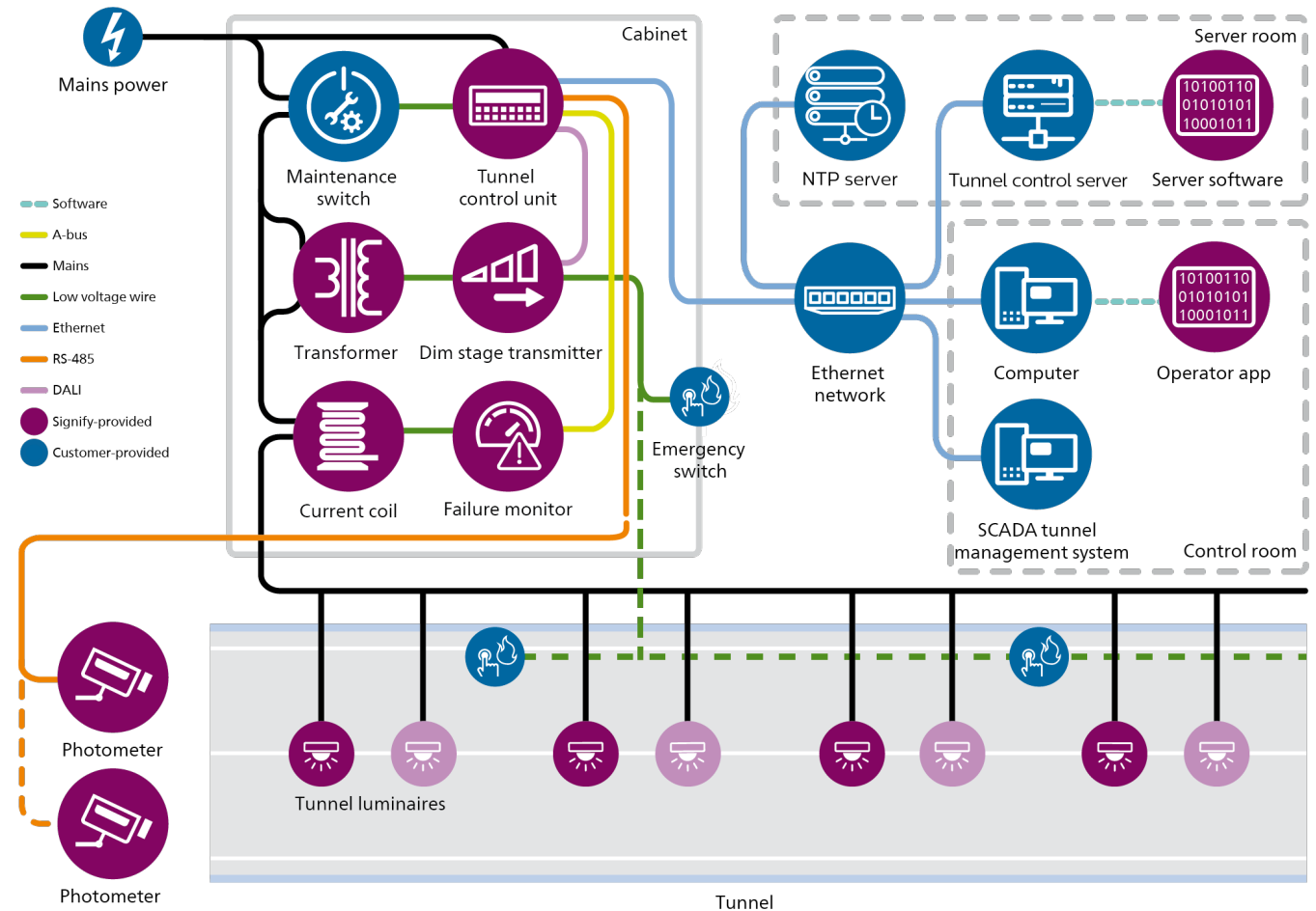
BaseLogic control and monitoring system is a basic step dim adaptive lighting system specifically for tunnel and underpass lighting projects.

BaseLogic (coded mains-based group light management)



BaseLogic – Topology

- Pre-programmed luminaires for easy commissioning
- Re-use of mains wiring avoids large additional costs for controls
- No additional components in the luminaires
- Highly customizable system architecture due to modular cabinet products



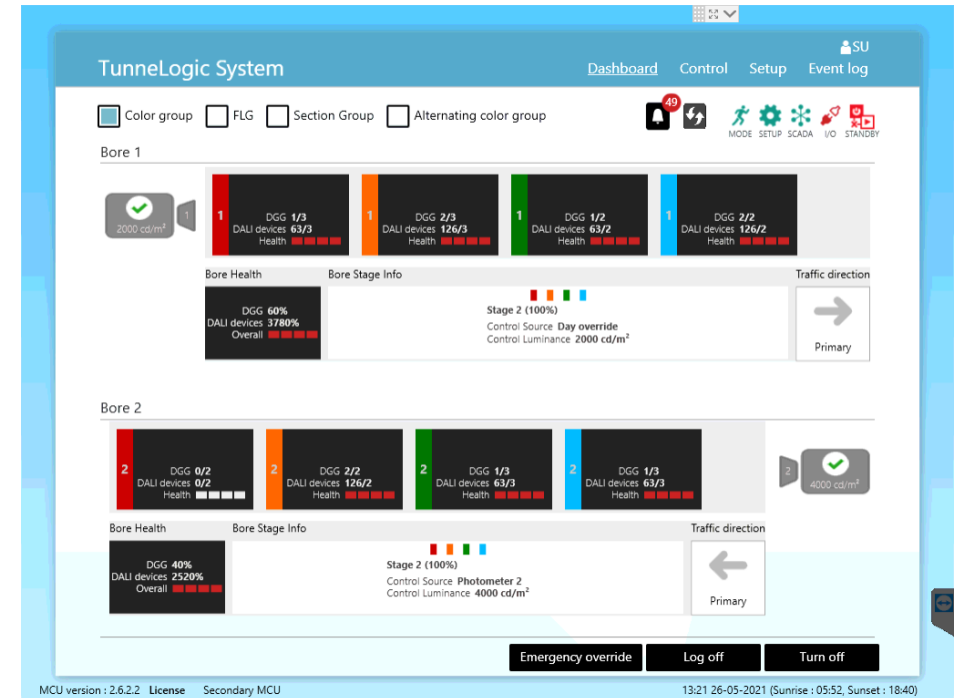
High-level system architecture

TunneLogic

TunneLogic is a Dynalite based system. Fully optimized for DALI components and LED technology, with all dim levels possible, it also supports the full range of tunnel LED luminaires.

Key benefits

- Part of the TotalTunnel lighting system; luminaires, controls and service from one supplier
- Feature-rich system
- Easy and short setup and commissioning process
- Combines the robustness of RS-485 or Ethernet communications with the flexibility of DALI
- Light point failure monitoring maximizes savings on operation costs
- Maximum energy saving through step-less dimming and optional feedback loop
- Open system, luminaire communication protocol based on DALI-2 (IEC62386)



MCU HMI



Master control Unit



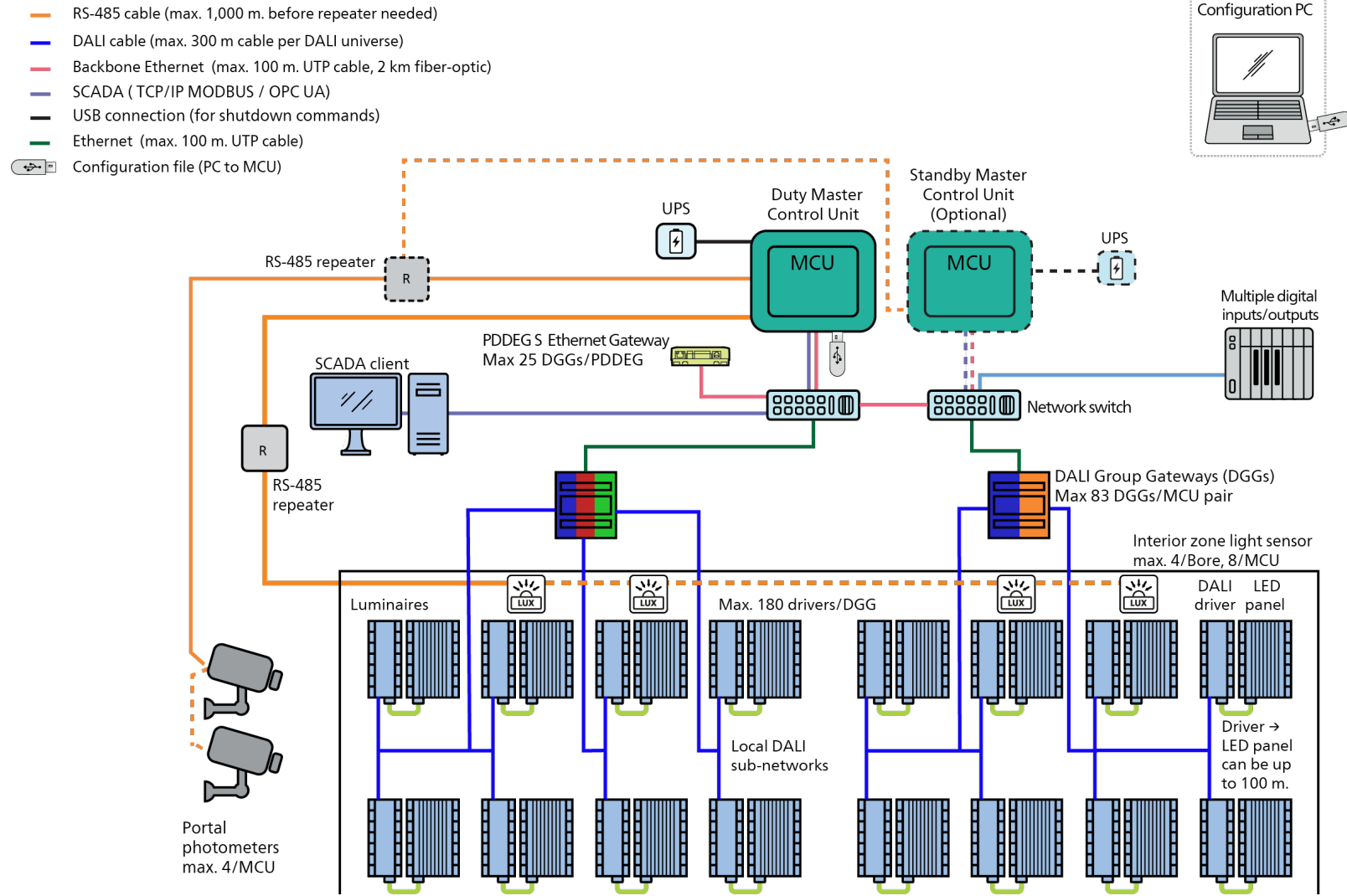
Photometer



Dali Group Gateways

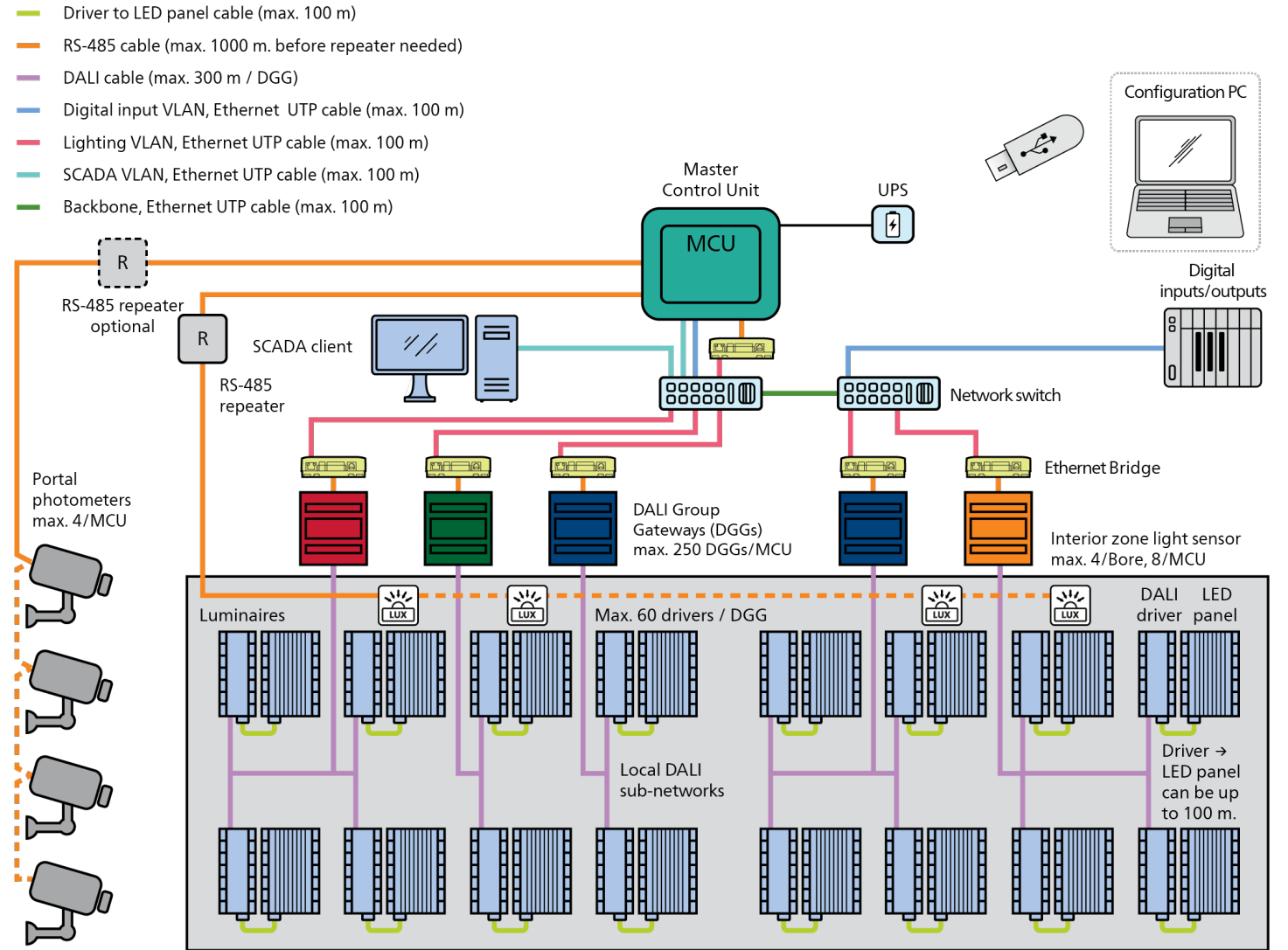
TunneLogic – SLP topology

- Data monitoring at individual luminaire level – burn hours, temperature, error data reporting etc.
- D4i certified accurate energy reporting per luminaire level
- Individual light control during maintenance
- Integration in SCADA OPC UA
- No additional components in the luminaires
- Dashboard
- Basic integration of guidance and architectural lighting
- Supporting ethernet backbone
- Providing redundancy options



TunneLogic – Group light topology

- Group control for easy commissioning
- No additional components in the luminaires
- Integration in SCADA
- Providing redundancy options
- Basic integration of guidance and architectural lighting
- Multiple communication backbone options, dedicated RS485 bus or re-use of ethernet network



Ethernet VLAN based tunnel management system

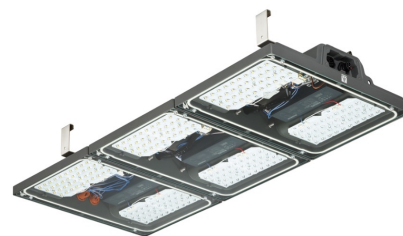
TunneLogic and BaseLogic feature set

Feature	TunneLogic	BaseLogic
Light control and monitoring	Yes, color group based light control, all dim levels	Yes, color group-based control, but limited dim staged possible
Commissioning free luminaires	Localization needed	Yes
Luminaire failure detection	Yes	Yes, currently based failure detection to indicate groups of luminaire failure
Photometer wash/wipe control	Yes	Yes
Manual override light control	Yes, manual stage override Remote emergency override	Auto (normal mode) Off (by means of an external circuit breaker) All ON or Emergency (by means of an external switch)
Power measurement and energy measurements	Yes	Yes
SCADA Integration	Yes	Yes, OPC UA based
Alarms on monitoring basis	Yes	Yes
Day night override	Yes	Yes
Interior zone alternate lighting management	Yes	No
Automatic interior zone lighting – lighting based on sensor	Yes	No
Adjustable k factor	Yes	No
Section level monitoring	Yes	No
Off peak night stage	Yes	No
Individual light point management	Yes	No



Tunnel lighting luminaire portfolio

TubePoint gen2



TunLite LED gen2



FlowStar



TubeLine



Tunnel luminaires

Signify TubePoint gen2

Key benefits

- Highly-versatile lighting solution, value for money
- Build to last a life-time: aluminum, modular design, high-quality materials and finish
- Point source – entrance, interior and exit lighting of any tunnel geometry
- Plug and play luminaire range (3 up to > 100 kLm)
- Best up-to-date LED performance and longevity: LED platform with optimized cooling design
- Optimized installation: flexible mounting solutions (quick release cable tray, tilt or ceiling mounted brackets)
- Long lifetime and fully serviceable design



Tunnel luminaires

Philips TubeLite LED gen2

Key benefits

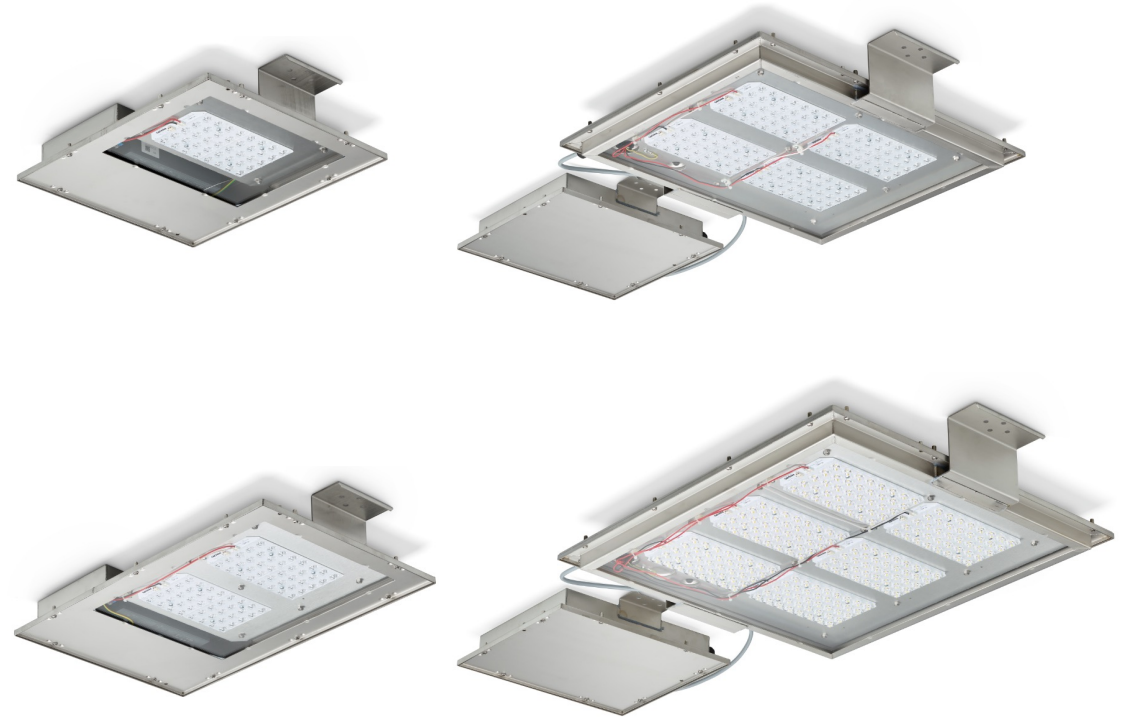
- A basic luminaire family that meets specification points for a competitive cost
- Standardized range of quality optics for common tunnel geometries
- Simple 1 plug connection
- Cable tray mounting or U-shape bracket
- Excellent combination of efficiency and performance (LEDgine optimized)
- Optimize performance using controls
- Fully serviceable: replace LED units and drivers



Tunnel luminaires Signify FlowStar gen2

Key benefits

- For the most demanding conditions, where corrosion is a real threat
- High-grade stainless-steel housing without any external aluminum parts
- Point source entrance, interior and exit lighting for any tunnel geometry range (6 up to 72 kLm)
- Best up-to-date performance and longevity: LED platform with optimized cooling design for full stainless-steel build
- Flexible mounting solution, quick release for easy maintenance
- Fully serviceable: replace LED units and drivers



Tunnel luminaires Signify TubeLine

Key benefits

- A cost-attractive LED alternative for fluorescent schemes: compact, aluminum, linear LED unit design
- Build to last a lifetime: high quality materials and finish
- Maximum overhead height or reduced tunnel height: extreme low build (34mm high) for comfortable interior lighting: continuous or dotted line options
- Best up-to-date LED performance and longevity: LED platform with optimized cooling design
- Suitable to light any tunnel interior: extensive lumen range and choice of optics
- Easy driver maintenance: remote driver in local or remote driver unit
- Optimized installation: flexible mounting solutions, through wiring



You and Signify – a reliable partnership

Signify is the world leader in connected LED lighting systems, software and services. We proudly bring to market the best lighting brands in the world, including Signify, Philips and Interact.

We believe in close cooperation before, during, and after every project. Our local teams provide the support and information you need—with flexible, on-time delivery and reliable product availability.

To help you stay ahead, the [Signify Lighting Academy](#) offers a comprehensive range of educational resources to grow your expertise and earn certification.

Get more info on our products, services and tools:

[signify.com/installer](https://www.signify.com/installer)

[signify.com/specifier](https://www.signify.com/specifier)

Our global brands

 Signify

Signify represents our commitment to sustainable innovation. As our leading brand for connected lighting systems, luminaires and components for the specification project business, Signify solutions serve the segments where we collaborate most closely with our customers.

 Signify interact

Signify Interact is our IoT software platform for managing smart lighting systems and unlocking the value of the data they collect. Easy to install and configure, Interact supports a wide range of applications—from small offices to entire cities.

PHILIPS

Philips stands for quality and energy efficiency in lighting. It is our leading brand for innovative, off-the-shelf lighting products for professionals and consumers alike.

Get into pole position with high-performance, energy-efficient LED



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the meaning of light