

The Philips logo is displayed in blue, bold, sans-serif capital letters on a white background. The background of the entire advertisement is a photograph of a tunnel interior, showing a road with white lane markings, a concrete wall with a yellow safety line, and a ceiling with multiple rows of bright, recessed lighting fixtures that create a strong perspective effect.

PHILIPS

TunneLogic

Outdoor lighting

TunneLogic system

Keeps you moving

See what our tunnel lighting control and monitoring system can do to keep you moving

TotalTunnel: 4 key building blocks

The TotalTunnel program is Philips' connected lighting approach to tunnel lighting and includes four key building blocks:



Luminaires

To support main tunnel lighting techniques.



Guidance lighting

To guide the traffic and to secure a safe exit.



System for lighting control

From basic controls to elaborate monitoring systems, our solutions give you full connectivity and control over the total lighting system.



Services

From concept design and commissioning to lifecycle services, Philips can deliver a complete project and protect your investment.

Total Solution

TunneLogic is a key part of the TotalTunnel solution - a complete one-stop shop covering project design, product selection, right through to lifecycle services management. Within each building block Philips offers a range of options from simple solutions that deliver unbeatable value to high performance alternatives. We select the components according to your specific needs, and then combine them to create a total lighting system that is unique to your project. So whether your focus is on the cost of the initial investment or the Total Cost of Ownership over the entire lifetime, Philips can build the right solution for you.





TunneLogic

Intelligent tunnel lighting controls

TunneLogic is our dedicated tunnel control and monitoring system designed specifically for LED technology. Our control system, which is easy to install, commission, operate and maintain provides the customer with safe lighting control and health information relating to the lighting system.

TunneLogic helps to minimize the complicated electrical design and it significantly reduces labor, traffic management, and capital expenditure. When used together with high-performance Philips tunnel LED luminaires, optimal system performance will be achieved.

Whatever your tunnel project requirements, whether it be new build, refurbishment, retrofit of a short underpass, or a tunnel of many kilometers, Philips offers an end-to-end lighting control system package for any type of tunnel project. Intelligent control systems offer a dynamic approach to realizing the project objectives and meeting client specifications.

Installation timescales are critical and with the minimal system components and plug-and-play methodology, on-site installation is quick and simple affording the installer capital efficiencies over many other systems.

The lighting control software user-friendly interface offers operators and maintainers easy navigation menus for monitoring lighting

system status and providing operational control either locally or via a SCADA network. Historical system data is easily accessible for photometer trending, system faults and stage burn hours, always providing the operator with information to suit their specific requirements.

High performance and system longevity are crucial to ensure your tunnel network is operational and traffic is kept moving freely. TunneLogic is designed to ensure optimal performance of the lighting system throughout the tunnel. With demonstrable project evidence in demanding conditions across many countries, partnering with Philips provides the best of opportunity for project cost, comfort and care.



Features of the TunneLogic system

Easy configuration and commissioning

TunneLogic is specifically designed to provide a control system solution that is easy to configure, install and commission.

Using the PC-based configuration wizard tool, we can easily build your tunnel project's profile and configuration parameters off site. Once completed, upload of the data file is via a USB memory device onto the Master Control Unit (MCU) during the commissioning stage.

Furthermore, with minimal system components and plug and play methodology, the system architecture is simple to design and install ensuring optimal benefits and flexibility for reducing installation costs.

Integration is easy using a standard Modbus SCADA interface (Serial or Ethernet).

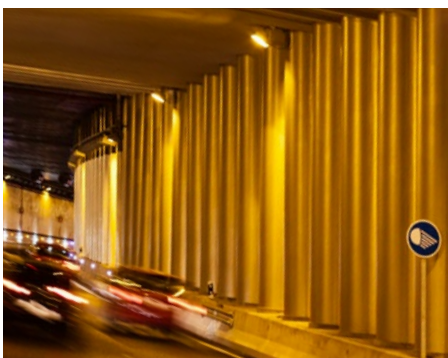
Extensive monitoring and control (system health)

The TunneLogic graphical user interface provides simple navigation for ease of control and monitoring functions.

Structured tabs allow access for extensive data logging management on photometer status, system faults and stage burn hours and control functions. Local and remote access provides the benefit of monitoring system performance and technical support to efficiently plan system maintenance and repair, reducing functional closures and lowering traffic disruption.

Applications

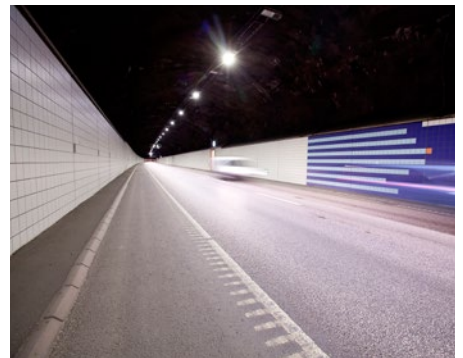
Short underpasses

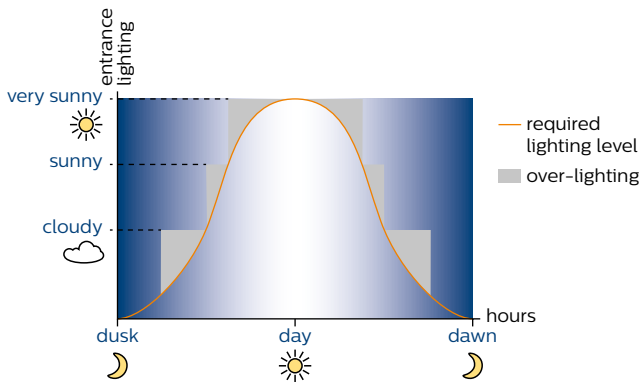


High-speed road tunnels



Long tunnels





Graphical representation of the energy saving benefits of dynamic digital control over conventional switched systems when using Philips TunneLogic solution

Lighting performance

Optimum performance is achieved as a system solution with luminaires and controls. Since TunneLogic is fully dedicated for LED technology, continuous dimming and L20 control of the lighting system provides the exact level of light needed at any given time to provide significant energy savings over other switched stage solutions. In addition to communication redundancy and failsafe configuration options, TunneLogic is a safe, robust solution for increasing system longevity and maintaining operational performance.

Cost savings

Next to all the benefits already mentioned, the entire system is a low cost, feature rich system. Not only is the system inexpensive to buy, you save costs in other ways post-purchase. As explained, the continuous dimming ensures the right lighting levels at every moment by precise L20 control. Additionally, the easy commissioning reduces design and engineering time, which also reduces costs and provides the opportunity to open the tunnel earlier.

Features/Benefits of Philips

On top of all the benefits of the TunneLogic system, Philips is your ideal partner to collaborate with. **Having more than 65 years of combined market experience**, Philips is always able to deliver a tailor-made solution.

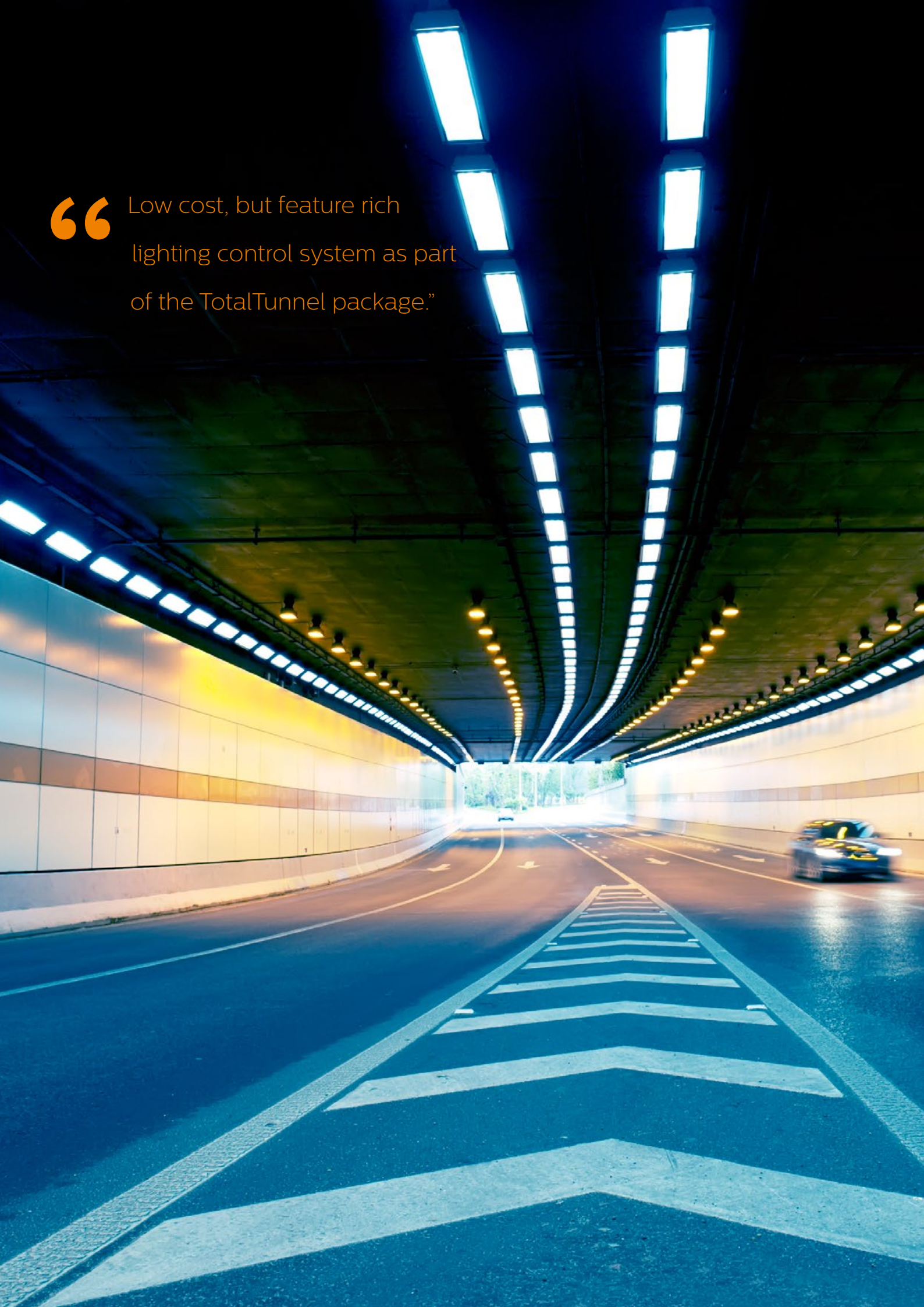
In particular because TunneLogic is part of the TotalTunnel package, which comprises:

- LED luminaires: TunneLogic is fully integrated with Philips luminaires (FlowStar, FlowLine, ClearFlood, T-Line)
- Guidance tunnel lighting: To guide the traffic and to secure a safe exit
- Controls: TunneLogic system
- Service: Full local support available for all project phases

By combining our four building blocks for success, we can create lighting solutions for you that offer precise levels of quality, guidance, control and service support.

“

Low cost, but feature rich lighting control system as part of the TotalTunnel package.”



Features/Benefits for different users

Every tunnel has a range of stakeholders. Each has their own list of requirements when it comes to the value and benefits that any lighting control system should demonstrate. Philips is at the forefront of the industry and can address all the key issues regarding tunnel lighting and controls. With our expertise and experience we can create the best possible solution; one that fits the requirements of your tunnel project in terms of cost, comfort and care.

Tunnel owners and operators

TunneLogic is efficient, reliable, safe, and easy to control and maintain. Clear information on the health of the lighting system optimizes and protects your investment.

Tunnel users

TunneLogic ensures the right lighting levels at every stage of the tunnel due to precise L20 control, thereby decreasing the black hole effect and maximizing the safety of tunnel users. Remote access to the system means continuous monitoring is possible without the need to close the tunnel, and thus reducing traffic disruption.

Tunnel installation companies

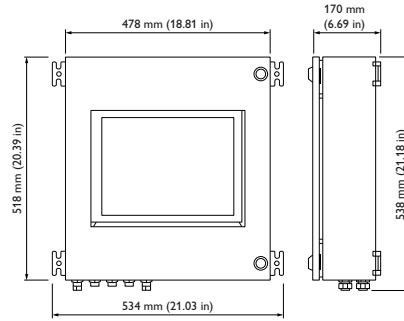
Our lighting solutions are available as a completely integrated system with clearly defined responsibilities on system integration. System architecture has been designed to be modular, plug and play and simple to commission to reduce installation time and minimize costly road closures.

Tunnel maintenance companies

Our solutions are long lasting and easy to maintain, with service packages and predictable expenses to help estimate your TCO and reduce tunnel closures and traffic disruption. System information on the health of the lighting is accessible via the SCADA interface or remotely, so that routine maintenance can be planned efficiently.

System Specifications

Master Control Unit (MCU)



General Characteristics

Input voltage range	100-240Vac
Input frequency	50/60Hz
Input current	1.0A max.
Housing	IP54 powder-coated steel RAL7021 with removable glass door

Operating Characteristics

Control output RS-485 configuration	4x RS-485 sockets 4x radial or 2x ring network
RS-485 max. length	1km before repeater required
Max. repeaters	10 per network
Max. DALI Group Gateways (DGG) per RS-485 Section	100
Max. DGGs per system	254
Maximum luminaires per DGG	20x FlowStar-3, 30x FlowStar-2, 60x FlowStar-1 / FlowLine
Maximum luminaires per system	5100x FlowStar-3, 7650x FlowStar-2, 15300x FlowStar-1 / FlowLine
Switching groups	Up to 10
Luminance meter inputs	2x RS-485 sockets
Functional Lighting Groups (FLGs)	8
SCADA connection	Serial / Ethernet Modbus
User Controls	15" touch-screen panel PC

Software Features

User access levels	3 ('view only', 'maintenance' and 'full access')
Individual user PIN codes	Yes
Lighting stage override	Yes
System event logging	Yes

Wiring Characteristics

Supply connection	2m flying lead with Line, Neutral and Earth connections
RS-485 Bus connector	4x circular 4-pole
RS-485 luminance meter connector	2x circular 4-pole
RS-485 cable	See RS-485 specs
SCADA connection	Serial or Ethernet

Temperature Characteristics

Operating temperature	-20°C to +50°C ambient
Operating humidity	0% to 90% RH non-condensing
Storage temperature	-25°C to +70°C ambient
Storage humidity	0% to 90% RH non-condensing

Product dimensions

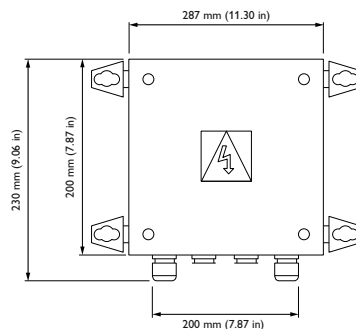
Height	518mm (plus connectors)
Width	478mm (plus brackets)
Depth	155mm (170mm with door fitted)

Compliance

CE marking	Yes
C-Tick	Yes
IEC62386	Yes
RoHS	Yes

Product Data

Full product name	LFC7620/00 MASTER CONTROL UNIT ASSY ZS
Order code	9137 030 88809
Net weight per piece	24kg (18.5kg without door)



System Specifications

DALI Group Gateways (DGG)

General Characteristics

Input voltage range	100-240Vac
Input frequency	50/60Hz
Input current	0.25A
Housing	IP66 Stainless steel (AISI 304)

Temperature Characteristics

Operating temperature	-20°C to +50°C ambient temperature
Operating humidity	0% to 90% RH non-condensing
Storage temperature	-25°C to +70°C ambient
Storage humidity	0% to 90% RH non-condensing

Operating Characteristics

Control output	1 x DALI
DALI unit qty.	1 DALI universe of 64 addresses
DALI power supply	Inbuilt rated 220mA @ 16Vdc typ. Overload and short circuit protected (auto restart)
DALI max. current	250mA
DALI insulation system	Basic (1.5kV surge)
Maximum luminaires	20x FlowStar-3, 30x FlowStar-2, 60x FlowStar-1 / FlowLine
Control inputs	1x RS-485 data connection 1x DyNet® serial port 1x AUX programmable dry contact input
DyNet DC Supply	12-15Vdc @ 120mA
User Controls	Service switch + diagnostic LED
Diagnostic functions	Driver output failure reporting Driver failure reporting DALI line short / overload detection LED run time tracking for each driver Device online / offline status
Switching groups	Select 1 of 10 colored groups

Product dimensions

Height	200mm (+ connectors)
Width	200mm (+ brackets)
Depth	120mm (+ brackets)

Compliance

CE marking	Yes
C-Tick	Yes
IEC62386	Yes
RoHS	Yes

Product Data

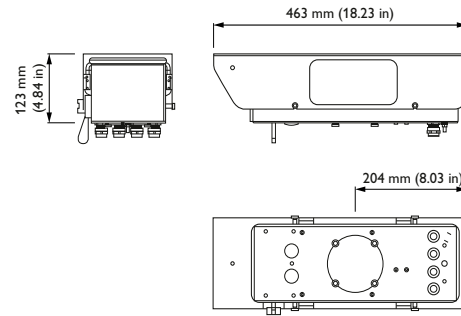
Full product name	LCN7632/00 DALI GROUP GATEWAY ASSY SST
Order code	9137 030 89409
Net weight per piece	3.0kg

Wiring Characteristics

Supply connector terminals	Line, Neutral, Earth
Conductor size	Max. 1x 2.5mm ² Cu
RS-485 connector	Circular, pre-molded multi-pole in/out series connection
Output connector terminals	DALI-, DALI+
Conductor size	Max. 1x 2.5mm ² Cu

Specifications

Luminance meter



General Characteristics

Input voltage range	100-240Vac
Input frequency	50/60Hz
Input current	1.5A
Housing	IP66 powder coated steel

Operating Characteristics

Control output	Internal RS-485 connection terminals
RS-485	max. length 1km before repeater required

Wiring Characteristics

Supply connector terminals	Line, Neutral, Earth
Conductor size	Max. 1x 3.0mm ² Cu
RS-485 connector terminals	D+, D-, SGND
Conductor size	Max. 1x 2.0mm ² Cu

Temperature Characteristics

Operating temperature	-20°C to +50°C ambient temperature
Operating humidity	0% to 90% RH non-condensing
Storage temperature	-30°C to +70°C ambient
Storage humidity	0% to 90% RH non-condensing

Product dimensions

Height	123mm (without optional wiper unit)
Length	463mm
Width	162mm

Compliance

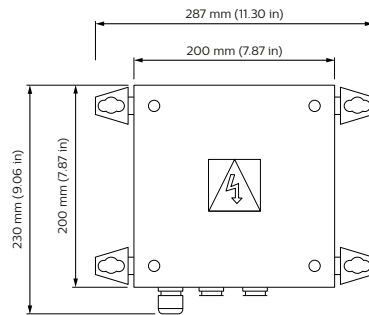
CE marking	Yes
RoHS	Yes

Ordering Data

Full product name	LRL7620/01 LUMIOS III ADDR #1
Order code	9137 003 70603
Full product name	LRL7620/02 LUMIOS III ADDR #2
Net weight per piece	9137 003 70703
Order code	4.5 kg
Full product name	LRL7621/01 LUMIOS III +WIPER ADDR #1
Order code	9137 003 71103
Full product name	LRL7621/02 LUMIOS III +WIPER ADDR #2
Net weight per piece	5kg
Order code	9137 003 71203

Specifications

Network Repeater



General Characteristics

Input voltage range	100-240Vac
Input frequency	50/60Hz
Input current	0.5A max.
Housing	IP66 Stainless steel (AISI 304)

Temperature Characteristics

Operating temperature	-20°C to +50°C ambient
Operating humidity	20% to 90% RH non-condensing
Storage temperature	-25°C to +75°C ambient
Storage humidity	20% to 90% RH non-condensing

Operating Characteristics

Control input	1x RS-485 data connection
Control output	1x RS-485 data connection
RS-485 max. length	1km before repeater required
Max. repeaters	10 per network
Max. DGGs per RS-485 per section	100
User Controls	None

Product dimensions

Height	200mm (plus connectors)
Width	200mm (plus brackets)
Depth	120mm (plus brackets)

Wiring Characteristics

Supply connection terminals	Line, Neutral, Earth
Conductor size	Max. 1x 4mm ² Cu
RS-485 connectors	Circular, pre-molded multi-pole in/out series connection

Compliance

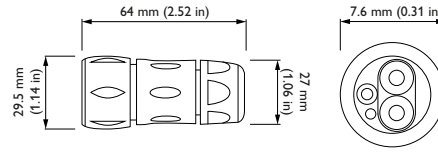
CE marking	Yes
C-Tick	Yes
RoHS	Yes

Ordering Data

Full product name	LCN7622/00 RS485 REPEATER ASSY SST
Order code	9137 030 89609
Net weight per piece	3.0kg

Specifications Cables

RS-485



General Characteristics

Core

1°	1 shielded pair 1x2x0.75/2.5
2°	1 wire 0.34/1.4
Drain wire	Stranded tinned copper (22awg)
Tape	Binder tape
Braid	Tinned copper wire braid, approx. 90% coverage
Tape	Plastic tape overlapped
Jacket	Formable LSZH elastomer compound, Orange RAL 2003, Ø 7.6 ± 0.3 mm
Print legend	PHILIPS LIGHTING CONTROL SYSTEMS (RS485-TSS1CS PUR)

Wire 0.34/1.4

Conductor	Stranded tinned copper wire (22awg), Ø 0.75 mm
Insulation	Polyethylene (PE), Ø 1.4 mm

Shielded pair 1x2x0.75/2.5

Conductor	Stranded tinned copper wire (22awg), Ø 0.75 mm
Insulation	Foamed Polyethylene (PE) with skin, Ø 2.5 mm
Formation	2 wires, blue and white twisted pair
Screen	Alulamine foil overlapped

Electrical Data at 20°C

Conductor resistance	≤ 56 Ω/km
Screen resistance	≤ 9.2 Ω/km
Insulation resistance	≥ 10 GΩ/km
Operating voltage (peak)	≤ 500 V
Test voltage (rms 50Hz 1min)	2000 V

Shielded pair

Capacitance (1 kHz wire/wire)	Nom. 36.1 nF/km
Capacitance (1 kHz wire/screen)	Nom. 65.6 nF/km
Characteristic Impedance	Nom. 120Ω
Velocity of propagation	Nom. 78%

Mechanical and Thermal Characteristics

Conductor material	According to IEC 228 Class 5
Insulating material	According to DIN EN 50290-2-26 (VDE 0819) (HD 624.6)
Jacket material	According to F45052-F5100 (similar to DIN VDE 0282)
Flame retardant	According to IEC 60332-1-2
Oil resistant	According to EN 60811-404 (7 x 24h/90°C)
Operating temperature	-40°C to + 80°C
Storage temperature	-40°C to + 80°C
Min. bending radius	Repeated 8 x Ø Single 4 x Ø
Weight (approx.)	69 kg/km

Other Characteristics

RoHS compliant	Yes 2011/65/EC
Hydrolysis resistant	Yes
Abrasion resistant	Yes
Halogen free	According to IEC 60754-1
Smoke density	According to IEC 61034

Available lengths

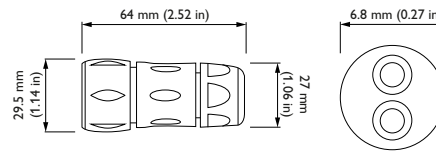
Cables are “made to order” and can be ordered in any length up to 300m

Product Data

Full product name	RS485 Link Cable (male/female)
Supplier order code	201G
Net weight per piece	0.1 + (N x 0.069) kg (N=cable length in meter)

Specifications Cables

DALI



General Characteristics

Conductor	Stranded bare copper wire, 30/0.25mm (1.5mm ²)
Insulation	LSZH FireFighter™, Ø 2.5mm
Formation	2 core purple numbered 1 & 2 alpha numerically
Jacket	Formable LSZH elastomer compound, Grey RAL 7001, Ø 6.8 ± 0.3 mm
Print legend	PHILIPS LIGHTING CONTROL SYSTEMS (DALI PUR 2x1.5mm)

Electrical Data at 20°C

Conductor resistance	≤ 13.3 Ω/km
Insulation resistance	≥ 10 MΩ/km
Operating voltage(peak)	≤ 500 V
Test voltage(RMS 50Hz 1min)	2000 V

Available lengths

Cables are “made to order” and can be ordered in any length up to 300m

Mechanical and Thermal Characteristics

Conductor material	According to IEC 228 Class 5
Insulating material	According to DIN EN 50290-2-26 (VDE 0819) (HD 624.6)
Jacket material	According to F45052-F5100 (similar to DIN VDE 0282)
Flame retardant	According to IEC 60332-1-2
Oil resistant	According to EN 60811-404 (7 x 24h/90°C)
Operating temperature	-40°C to + 80°C
Storage temperature	-40°C to + 80°C
Min. bending radius	Repeated 6 x Ø Single 4 x Ø
Weight (approx.)	71 kg/km

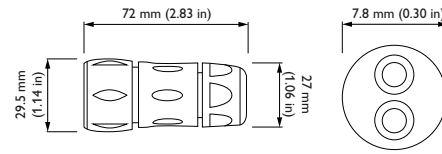
Product Data

Full product name	DALI Link Cable (female/female)
Supplier order code	272G
Net weight per piece	0.1 + (N x 0.071) kg (N=cable length in meter)

Other Characteristics

RoHS compliant	Yes 2011/65/EC
Hydrolysis resistant	Yes
Abrasion resistant	Yes
Halogen free	According to IEC 60754-1 and VDE 0282
Smoke density	According to IEC 61034
NEN1010 compliant	Yes

Specifications Cables LED Extension Lead



General Characteristics

Conductor	Stranded bare copper wire, 50/0.25mm (2.5mm ²)
Insulation Formation	LSZH FireFighter™, Ø 3.0mm 2 wires, black and red twisted
Jacket	LSZH-PUR compound, Grey RAL 7001, Ø 7.8 ± 0.3 mm
Print legend	PHILIPS LIGHTING CONTROL SYSTEMS (T-LINE PUR 2x2.5mm)

Mechanical and Thermal Characteristics

Conductor material	According to IEC 228 Class 5
Insulating material	According to DIN EN 50290-2- 26 (VDE 0819) (HD 624.6)
Jacket material	According to F45052-F5100 (similar to DIN VDE 0282)
Flame retardant	According to IEC 60332-1-2
Oil resistant	According to EN 60811-404 (7 x 24h/90°C)
Operating temperature	-40°C up to + 80°C
Storage temperature	-40°C up to + 80°C
Min. bending radius	Repeated 6 x Ø Single 4 x Ø
Weight (approx.)	103 kg/km

Other Characteristics

RoHS compliant	Yes
Hydrolysis resistant	Yes
Abrasion resistant	Yes
Halogen free	According to IEC 60754-1
Smoke density	According to IEC 61034

Electrical Data at 20°C

Conductor resistance	≤ 7.98 Ω/km
Insulation resistance	≥ 10 MΩ/km
Operating voltage (peak)	≤ 500 V
Test voltage (rms 50Hz 1min)	2000 V

Available lengths

Cables are “made to order” and can be ordered in any length up to 200m

Also available

1.5mm² cores
4.0mm² cores

Product Data

Supplier order code	115G
Full product name	LED Extension Lead
Net weight per piece	0.05 + (N x 0.103) kg (N=cable length in meter)

Control Network / Topology

