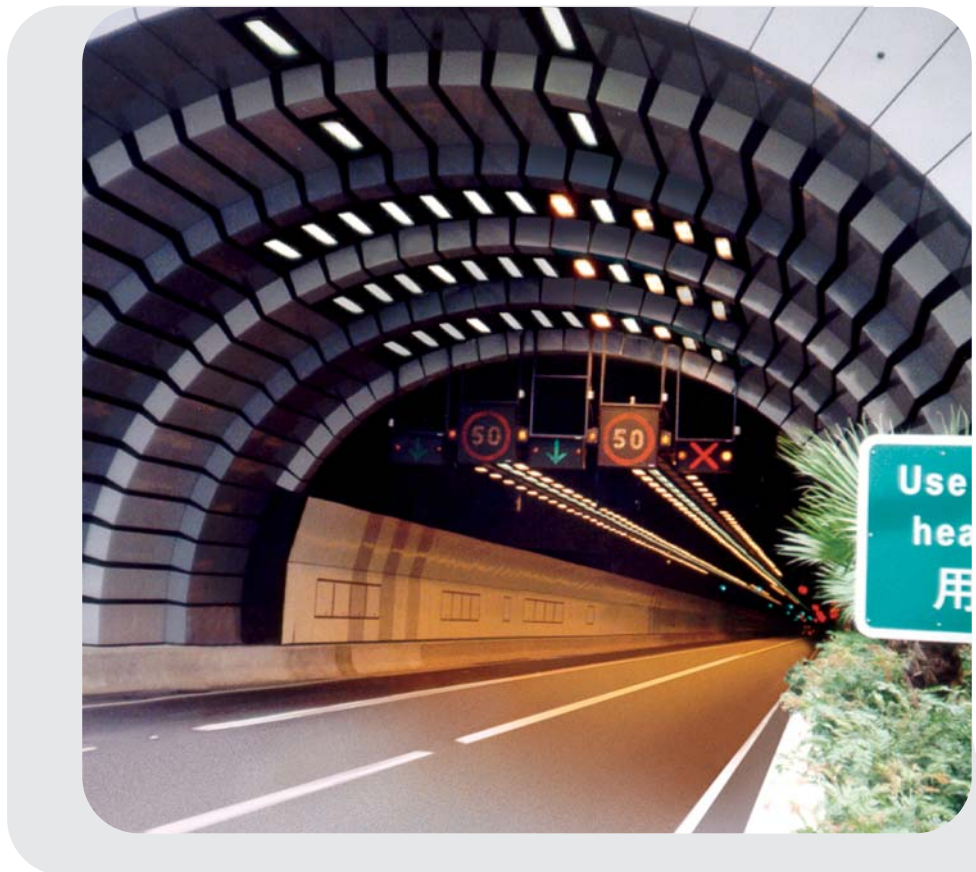
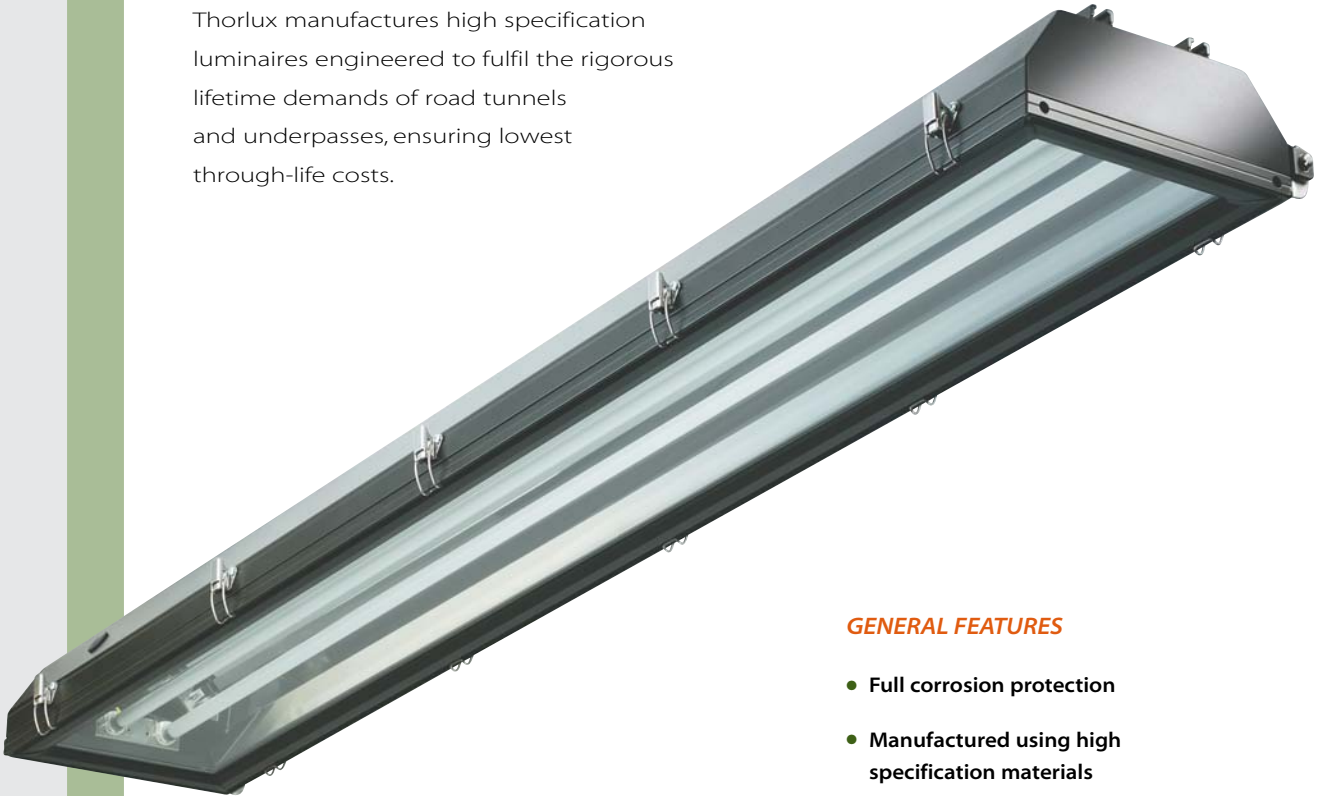


Thorlux tunnel LIGHTING



Thorlux tunnel LIGHTING

Thorlux manufactures high specification luminaires engineered to fulfil the rigorous lifetime demands of road tunnels and underpasses, ensuring lowest through-life costs.



GENERAL FEATURES

- Full corrosion protection
- Manufactured using high specification materials
- Field proven reliability
- Fluorescent T5, T8, TC-L or HID lamp options
- Rail or side flange fixing options
- Tool free lamp access with fully hinged cover
- SCANLIGHT option for digital addressable control and monitoring system (see pages 5 & 6)



PROJECT ADVICE

Free project advice can be supplied by our tunnel lighting specialists

EXPERIENCE IN ROAD TUNNEL LIGHTING DESIGN AND SUPPLY

Thorlux have been the major road tunnel lighting supplier to Hong Kong since 1996. This has involved lighting design, product development and extensive factory testing to meet demanding project specifications.

Thorlux is now supplying luminaires and systems for major contracts within the U.K.



CHERRY STREET UNDERPASS *HONG KONG*

100m underpass in busy Central District.
LUMINAIRES SUPPLIED - 691

CHEUNG TSING TUNNEL *HONG KONG*

Twin bore 2.5km road tunnel linking Hong Kong island to the new Chep Lap Kok Airport.
LUMINAIRES SUPPLIED - 6122

WESTERN HARBOUR CROSSING *HONG KONG*

Twin tube 1.8km road tunnel linking Hong Kong island with Kowloon mainland.
LUMINAIRES SUPPLIED - 4669

TSING YI SOUTH BRIDGE 3 & UNDERPASS *HONG KONG*

Enclosed road bridge and connected short underpass. Cornice luminaires with asymmetric light distribution utilized.
LUMINAIRES SUPPLIED - 420

TAI LAM TUNNEL *HONG KONG*

3.8km twin bore road tunnel through a mountainous region of Hong Kong New Territories.
LUMINAIRES SUPPLIED - 7396

LION ROCK TUNNEL *HONG KONG*

1.4km twin bore road tunnel refurbishment. Luminaires wall mounted.
LUMINAIRES SUPPLIED - 4259

BULLRING TUNNEL *BIRMINGHAM - UK*

Part of the spectacular new retail development in Birmingham, England. **SCANLIGHT** addressable lighting control system utilized.
LUMINAIRES SUPPLIED - 145

HEATHROW AIRSIDE ROAD TUNNEL *LONDON - UK*

Twin bore 1.4km road tunnel servicing the new Terminal 5. **SCANLIGHT** addressable lighting control system utilized.
LUMINAIRES SUPPLIED - 800

LUMINAIRE RANGES

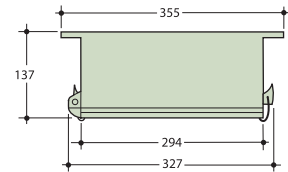
TUNNEL - SD TUNNEL - SF



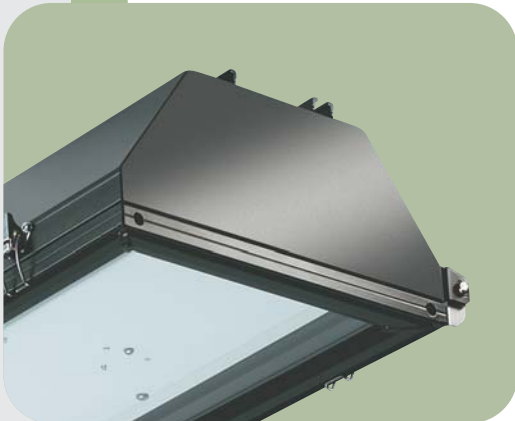
TUNNEL-SD	OVERALL LENGTH*
2 x 400W (max)	1594mm
1 x 400W (max)	797mm

TUNNEL-SF	OVERALL LENGTH*
1 x 80W (max) TC-L	797mm
2 x 80W (max) TC-L	797mm
1 x 80W (max) T5	1594mm
2 x 80W (max) T5	1594mm
3 x 80W (max) T5	1594mm
1 x 58W T8	1594mm
2 x 58W T8	1594mm
3 x 58W T8	1594mm

*Lengths can be increased to special order.



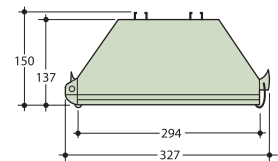
TUNNEL - PD TUNNEL - PF



TUNNEL-PD	OVERALL LENGTH*
2 x 400W (max)	1594mm
1 x 400W (max)	797mm

TUNNEL-PF	OVERALL LENGTH*
1 x 80W (max) TC-L	797mm
2 x 80W (max) TC-L	797mm
1 x 58W T8	1594mm
2 x 58W T8	1594mm
3 x 58W T8	1594mm

*Lengths can be increased to special order.

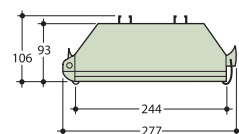


TUNNEL - PT5



TUNNEL-PT5	OVERALL LENGTH*
1 x 80W (max) T5	1544mm
2 x 80W (max) T5	1544mm
3 x 80W (max) T5	1544mm

*Lengths can be increased to special order.



SPECIFICATION SUMMARY

STANDARDS - IP66, CE marked and manufactured to EN 60598 2-1

BODY/FRAME - Main body section and frame extruded from grade 6063T6 aluminium to BS EN 573/3 and BS EN 755/2. Main structural sections are nominally 3.0mm thick on the body and 2.0mm thick on the frame.

CORROSION PROTECTION - Body and frame are pre-treated using latest conversion coating technology and finished full polyester powder black as standard.

GLASS COVER - Is 5mm thick toughened/safety glass to BS3193.

GASKETS/SEALING - Body/glass sealing is provided by a reliable and durable closed cell silicone gasket. Grade 316S16 stainless steel body/frame toggle catches are attached to the body avoiding metal to metal contact between any component. Toggle catches are PTFE coated to further avoid electrolytic corrosion.

A floating glazing frame hinge allows the toggle catches to apply equal gasket pressure on all sides of the body for reliable ingress protection.

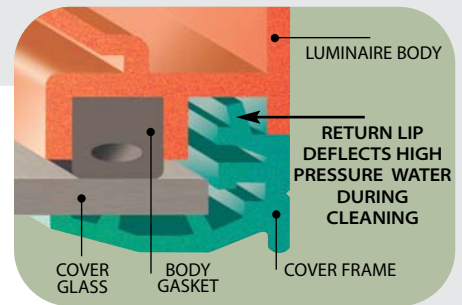
A deflection lip designed into the frame gives added gasket protection during water-jet cleaning (see top illustration above).

PHOTOMETRICS - Optimum performance is provided by a choice of anodised aluminium reflector systems.

CONTROL GEAR - High frequency, high frequency dimmable (analogue) or high frequency dimmable (digital) is 220-240V, 50/60Hz as standard and is mounted on quick release gear trays (other Volts/Hz on request).

ELECTRICAL SUPPLY - Cable gland entries or flying leads to project requirements.

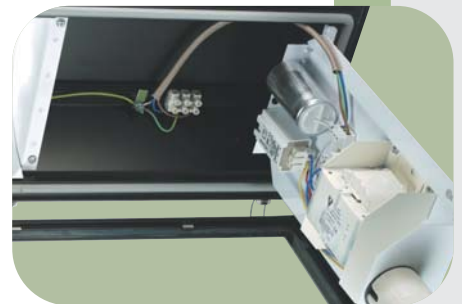
CONTROLS SUPPLY - Cable gland entries or data sockets with pre-made leads to project requirements.



DEFLECTION BARRIER:
RETURN LIP SEATS INTO BODY CHANNEL



FLOATING HINGES AND CLOSED CELL SILICONE GASKET



EASILY DEMOUNTABLE, HINGED PLUG AND SOCKET GEAR TRAY (HID VERSION SHOWN)



FIXING RAILS ON TUNNEL - PD / PF / PT5 VERSIONS



FIXING FLANGES ON TUNNEL - SD AND SF VERSIONS (TYPICAL CLAMP FIXING SHOWN)

Scanlight lighting CONTROLS

Scanlight is a digital addressable tunnel lighting control and monitoring system; a joint venture between P. Ducker Systems Ltd and Thorlux Lighting.

Scanlight capitalises on the enhanced functionality of the latest DALI (*digital addressable lighting interface*) electronic ballasts.

BRIEF SYSTEM DESCRIPTION

The critical ratio between external tunnel entrance approach luminance and the tunnel threshold zone luminance must be maintained to avoid the 'black hole' effect.

External luminance is monitored by externally mounted photometers which then continually report the data to the Lighting Management Units (LMUs).

The LMUs react to this data by selectively switching/dimming individual lamps via the Luminaire Interface Units (LIUs) whilst at the same time collecting luminaire operational information, including lamp status, from

entrance and also main tunnel section luminaires.

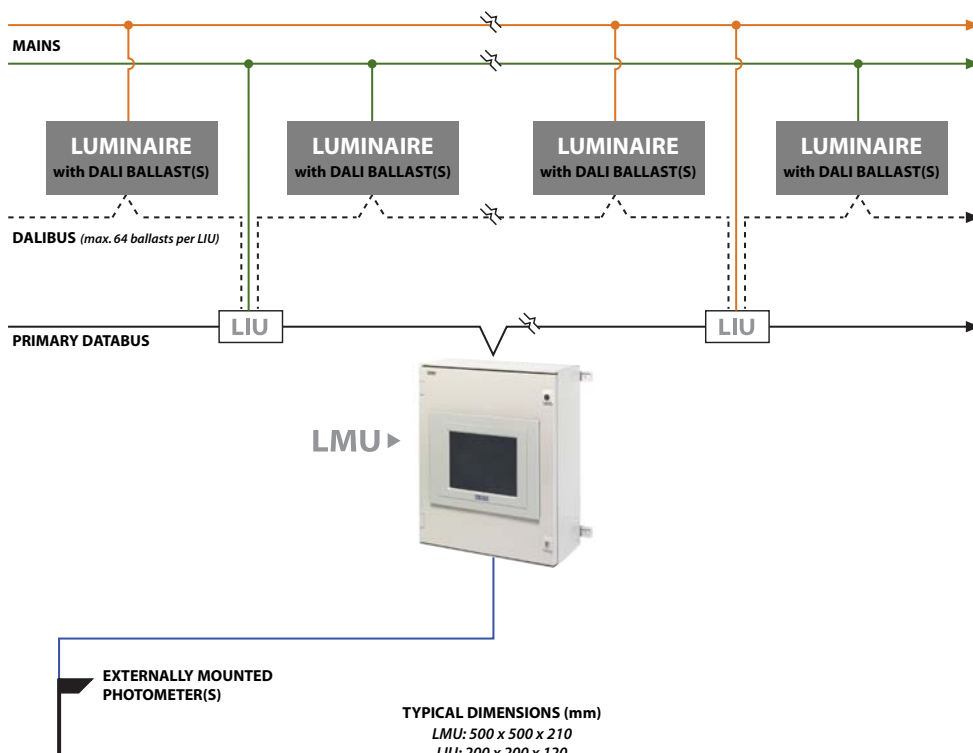
By using the operational information received, the LMUs (via the LIUs) continually maintain required lighting levels by switching/dimming lamps in each individual luminaire.

The LIUs can control up to 64 ballasts and are typically mounted at luminaire height.

The system may be manually overridden at anytime.

Dual redundancy can be provided at all levels where required.

BRIEF SCHEMATIC DESCRIPTION



SCANLIGHT BENEFITS

UP TO 30% INSTALLATION COST SAVINGS

- No mains switching - saves cost of switchgear
- Simple circuitry - saves time installing
- Pre-made plug & socket connections avoid wiring errors and reduce installation time
- No requirement to install luminaires in pre-set order, no dip-switches to set
- No need to open luminaires during installation
- 220-240V, 50/60Hz SON dimming ballasts provide correct lamp functionality between 206 and 254 volt mains supply therefore reducing volt drop problems

UP TO 30% ENERGY COST SAVINGS

- Individual lamp dimming enables close fit to Luminance Reduction Curve saving energy compared with conventional crude stage switching
- Dimming to achieve maintained lighting levels saves energy

HIGH SYSTEM INTEGRITY

- No bespoke electronics or unreliable contactors in luminaires or control system
- Industry standard DALI protocol guarantees future component availability and compatibility
- Failed lamp compensation system to ease maintenance / enhance safety
- Dual redundancy available at all levels
- Solid state components for high reliability

SIMPLIFIED MAINTENANCE / LOWER OPERATIONAL COSTS

- Minimisation of different components. DALI ballast is single piece: (*integral starting and high power factor*)
- Diagnostic fault finding
- Predictive lamp survival data available
- Historical operational data collection
- Can be fully integrated to tunnel control systems with dial-in remote control possible

HIGH COMFORT LIGHTING

- Dimming avoids changes to lighting uniformity normally associated with conventional stage switching



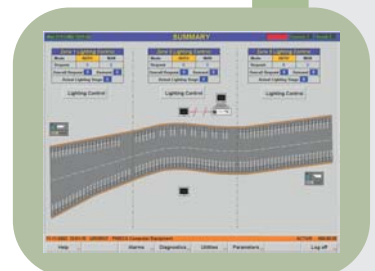
LIGHT-WEIGHT, SINGLE PIECE HID DALI ELECTRONIC BALLAST ON FAST RELEASE GEAR TRAY



LIUs INTERFACE BETWEEN EACH DALIBUS (MAX. 64 LUMINAIRE BALLASTS) AND THE MAIN COMMUNICATIONS NETWORK



LMUs SERVE THE MAIN COMMUNICATIONS NETWORK



TYPICAL SCREEN VIEW SHOWING LIGHTING STATUS TO EACH INDIVIDUAL LAMP

SCANLIGHT
IN ASSOCIATION WITH

PDS

P. DUCKER SYSTEMS LTD.

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e-mail richard.thomas@pdslimited.co.uk
Web www.pdslimited.co.uk

*Designers, manufacturers and
suppliers of professional lighting systems*

INDUSTRIAL LUMINAIRES **COMMERCIAL LUMINAIRES**
FLOODLIGHT LUMINAIRES **ARCHITECTURAL LUMINAIRES**
CONTROLS AND SYSTEMS **TUNNEL LIGHTING SYSTEMS**



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LIGHTING INDUSTRY FEDERATION
MEMBER



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