TUNGSRAM™

Innovation is our heritage
EST. 1896

Outdoor Product Catalogue

tungsram.com

Join us in the new world of LED

LED Outdoor solutions deliver a light closer to natural daylight than the traditional lamps of the past. The latest LED lighting solutions provide an ideal upgrade path for public bodies looking to reduce energy costs and environmental impact. LED can make striking aesthetic improvements to landscapes and cityscapes.

The benefits of LED

- Increased sense of comfort and security
- Streets and car parks are better illuminated
- Enhanced CCTV through better facial recognition
- Improved road safety - faster responses
- Up to 70% higher energy efficiency
- Longer life and reduced maintenance
- Enhanced control/ dimming capabilities
- Colours are more vivid and more real in public areas
- Better light control, less light pollution

Outdoor lighting

Product overview

Whether it's traffic on the road or people on footpaths, in public areas or visiting shops and restaurants, effective outdoor lighting means greater visibility, which in turn helps to maximise public safety and sense of security, and breathe new life back into cities. Outdoor lighting has other benefits too, including the delivery of dramatic aesthetic benefits and a major savings in energy costs.

We have pioneered the development of efficient LED luminaires that have transformed the outdoor environment and enhanced the night time experience for millions.

The LED lighting is used everywhere from residential streets to highways, creating a bright white light that improves safety through improved visibility, while also reducing energy consumption and associated costs.

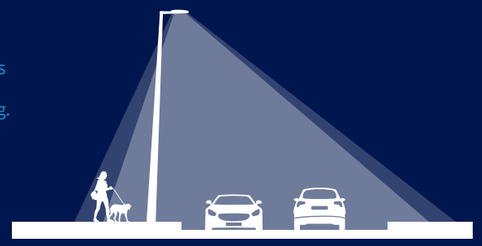
High performance area lighting is designed to ensure that the light is aimed directly where it's needed while also delivering optimum performance in terms of luminance, uniformity and glare.

LED tunnel lighting fixtures combine excellent light quality with high levels of energy efficiency and reliability to deliver a safe and easy-to-maintain solution for tunnels, underpasses and industrial areas.

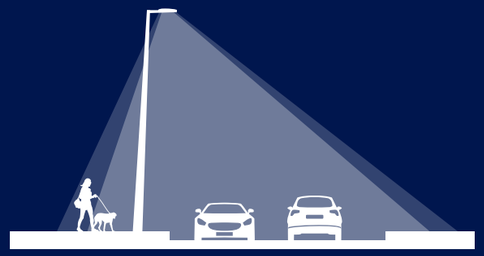
Outdoor lighting

Lumen output characteristics

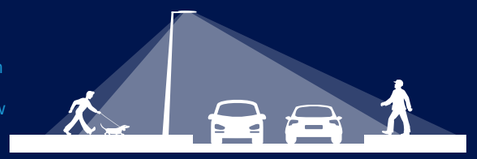
M3 to M6 and C Classes for road and street lighting. Mounting above 6m.



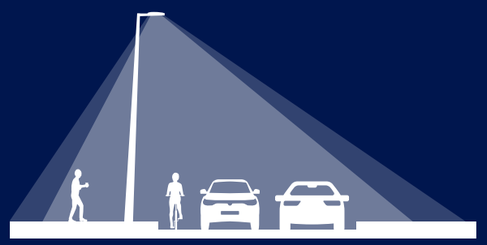
M3 to M6 and C Classes for road and street lighting. Mounting above 6m.



For C, P and S Classes, wide residential street lighting for improved face recognition and safety. Mounting below 4m.



For C Classes - Pedestrian crosswalks, P Classes improved backlight for sidewalks Mounting above 6m.



Light distributions and optics

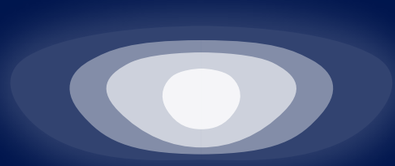
CCC

EEE

FFF

B, B2, B5, R, S

C, C5



E, E2, E5

D

F

G2, F5

P5

X5

Z5

Outdoor lighting

Lumen output characteristics

For Wet Road Classes - Pedestrian sidewalks, parking lanes. Mounting above 6m.

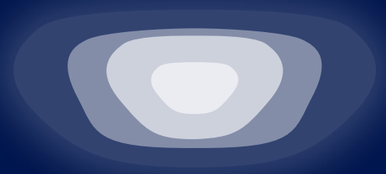
Asymmetrical distribution for P Classes - Area, Square and Park lighting. Mounting below 6m.

Symmetrical distribution for P Classes - Area, Square and Park lighting. Mounting below 6m.

Symmetrical and asymmetrical distributions for Canopy lighting. Mounting 4-6m.

Symmetrical distributions for Tunnel lighting.

Light distributions and optics



N, T

U

P

AF

ANC, AN

AFC, AWC, AW

AWD, SWD, SWF

SFC, SWC

A25, A35, A55

S25, S35, S55

SA, SB, SC, SD, SE

Y5

Outdoor lighting

Product overview

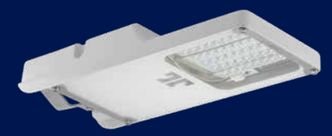
Road & street lighting

Inlumino

Wattage (W): 30 - 300
CCT (K): 3000, 4000, 5000
Lumen (lm): 4 000 - 40 000
IP: IP66
IK: IK09

SMIx

Wattage (W): 35 - 160
CCT (K): 3000, 4000, 5000
Lumen (lm): 5 000 - 22 000
IP: IP66
IK: IK08



Piko

Wattage (W): 12 - 28
CCT (K): 3000,4000, 5000
Lumen (lm): 1 500 - 3 600
IP: IP66
IK: IK08

SLBt

Wattage (W): 15 - 70
CCT (K): 2700, 3000, 4000
Lumen (lm): 1 200 - 8 200
IP: IP66
IK: IK09

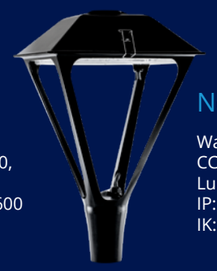
SMBt

Wattage (W): 50 - 160
CCT (K): 3000, 4000
Lumen (lm): 6 400 - 18 700
IP: IP66
IK: IK09

Decorative & pedestrian lighting

Navona

Wattage (W): 20 - 70
CCT (K): 2700, 3000, 4000
Lumen (lm): 1 700 - 7 600
IP: IP66
IK: IK08



Nobila

Wattage (W): 20 - 90
CCT (K): 3000, 4000
Lumen (lm): 2 700 - 10 600
IP: IP66
IK: IK08

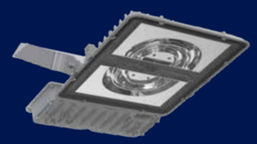
Canopy & Area lighting

ALIx

Wattage (W): 32 - 140
CCT (K): 3000, 4000, 5000
Lumen (lm): 3 600 - 17 600
IP: IP66
IK: IK08

AMIx

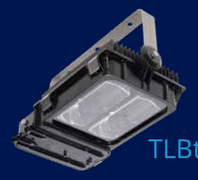
Wattage (W): 55 - 150
CCT (K): 3000, 4000
Lumen (lm): 7 560 - 18 750
IP: IP65
IK: IK07



AHIx

Wattage (W): 200 - 300
CCT (K): 3000, 4000, 5000
Lumen (lm): 21 000 - 37 600
IP: IP66
IK: IK08

Tunnel lighting



TLBt / TMBt

Wattage (W): 32- 175
CCT (K): 4000
Lumen (lm): 4 250 - 22 840
IP: IP66
IK: IK09

Road & street lighting

Road and street lighting

Inlumino

Product information

The new Tungsram luminaire, with its innovative and unique solutions, is an excellent choice for road and street applications.The key aspects of the lamp development are the simple and fast installation, the tool-free repair options and the diverse usage. The luminaire meets the expectations of the 21st century: sleek design, and high efficiency. Inlumino is also suitable for a variety of applications, as it can be installed as a light source or easily upgraded to an IoT data point. Take advantage of the innovation from Tungsram and optimize your outdoor lighting with the new range of Inlumino luminaires.

Application areas

- Pedestrian street
- Roadways and Highways

Details

Inlumino

Driver feature

- Electronic, dimmable driver
- Controls: Dali, DynaDim, CLO
- ThermalGuard

Structures and materials

- Housing material: die-cast aluminium body and coupler, with stainless steel screws
- Optic material: Optical-grade polycarbonate
- Optical cover: Tempered glass
- Colour: RAL7021
- Impact Strength: IK09 (glass) / IK09 (housing) / IK08 (Shorting Cap)

Performance

- Rated luminous flux range: from 4 000 to 40 000 lm at 4000K
- Rated luminaire efficacy: minimum 125lm/W, up to 159lm/W
- Rated median useful life and the associated rated LM factor: L80B50 > 290.000 hours
- Rated abrupt failure value < 10% at 100.000 hours
- Photometric code: 730/559, 740/559, 750/559
- Lumen maintenance code: 9

* Definitions and tolerances according to IEC 62722-2-1.
**Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

- Side mounting coupler for 30-60mm diameters and -15°, -10°, -5°, 0° tilt options
- Post top mounting coupler for 30-60mm diameters and 15°, 10°, 5°, 0° tilt options
- Weight: 12.5 kg
- Recommended mounting height: 6-25 m
- Only two hand-tools required for installing the fixture
- Tool-less maintenance, click and flip, twist and lock
- Tool-less hinged opening and lift-off head with automatic electrical disconnect
- Storage temperature from -40ºC to +85ºC
- Ambient temperature from -40ºC to +50ºC

Optics

Available photometric distributions:

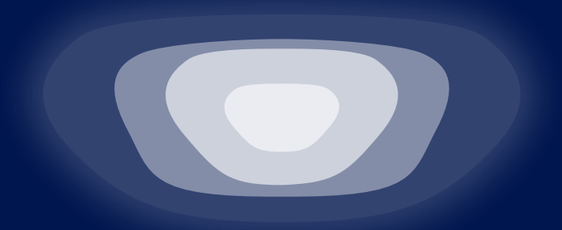
49different optic combinations would be available which are suitable for pedestrian streets to high traffic roads.
* All symmetric optic combinations are valid eg. ABA, but ABC is not.

AAA
BBB
CCC
DDD
EEE
FFF
GGG

Rated colour rendering index > 70
Rated correlated colour temperatures: 3000K, 4000K, 5000K
ULOR: 0
Rated initial chromaticity co-ordinate values:
- 3000K: CIE(x=0.4338, y=0.403) 5SDCM
- 4000K: CIE(x= 0.3818, y= 0.3797) 5SDCM
- 5000K: CIE(x= 0.34, y= 0.35) 5SDCM

Rated initial chromaticity co-ordinate values

- CIE(x=0.43, y=0.403) 5SDCM
- CIE(x= 0.38, y= 0.38) 5SDCM
- CIE(x=0.4578, y=0.4101) 5SDCM



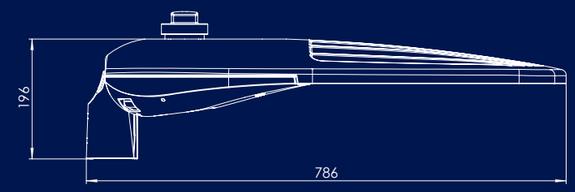
Asymmetric – short

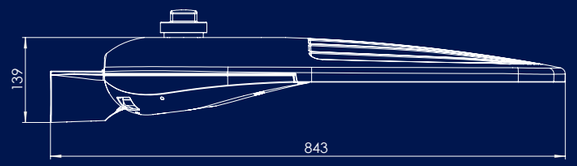
Electrical

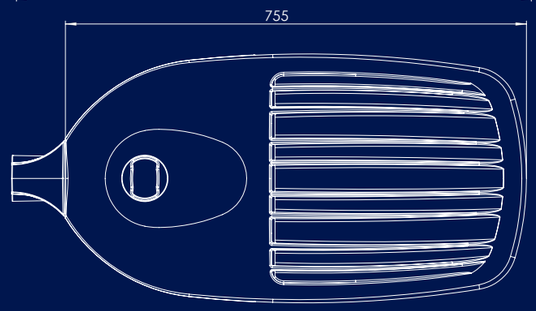
Input voltage and frequency: 220-240V, 50-60Hz
IEC protection class: Class I as standard (Class II on request)
Driver immunity: 10kV/5kA
Rated input power: 30W to 300 W

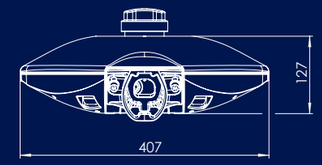
Dimensions (mm)

SIZE "L"









Road and street lighting

SMIx

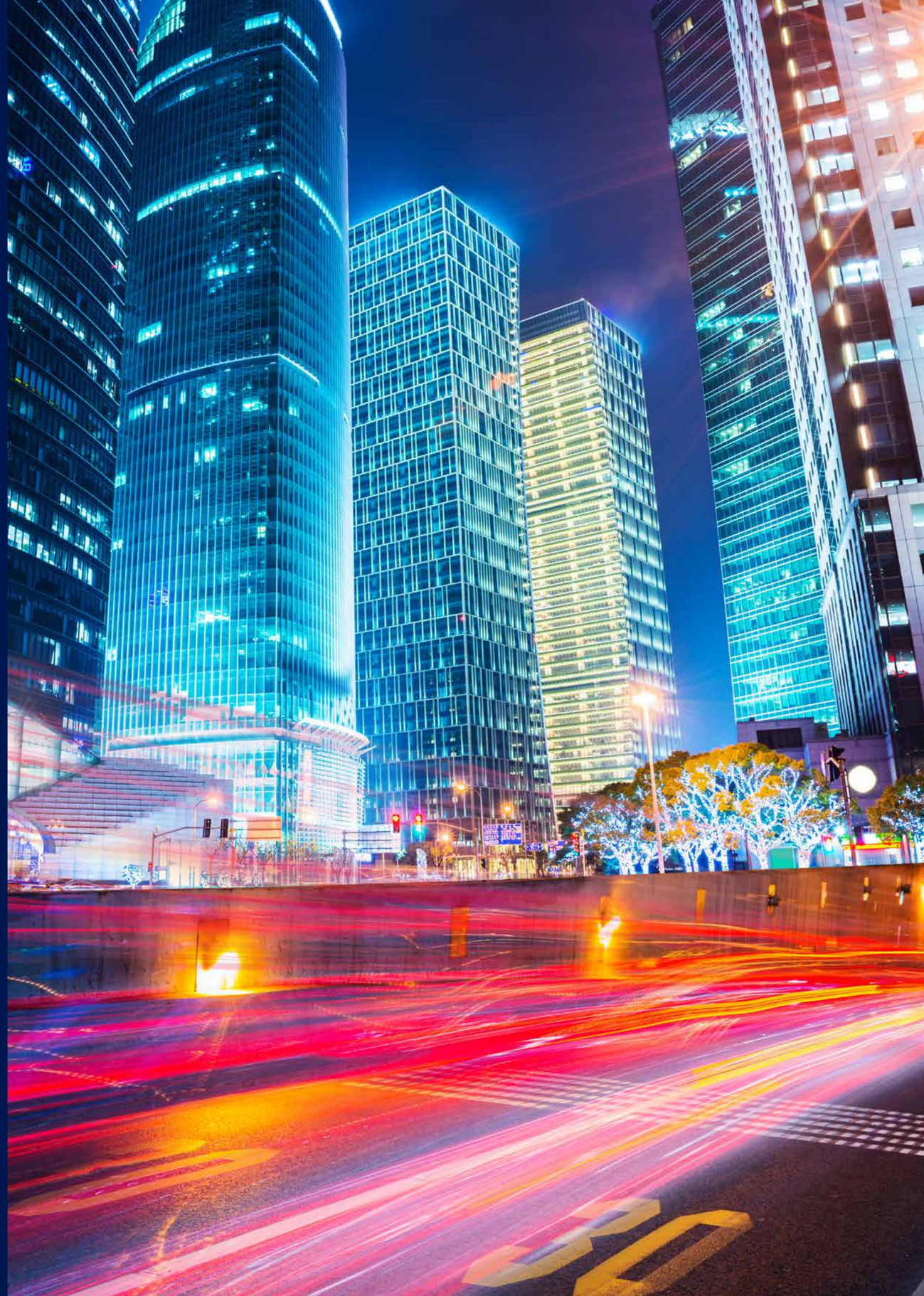
Product information

SMIx offers an optimal solution for street lighting. Modular refractive optic system, a wide range of light distributions can be achieved. The optimized mechanical design provides simple installation, adjustability and reliability.

Application areas

Residental

Road and street
Motorways



Details

SMIx

Driver feature

- Electronic, dimmable (DALI) driver with autonomous dimming: 35-160W

Structures and materials

- Housing material: die-cast aluminium body and UV stable plastic door with corrosion resistant polyesther powder coat, stainless steel screws and brackets
- Optic material: Optical-grade polycarbonate
- Optical cover: Tempered glass
- Colour: RAL7035
- Impact Strength: IK08 on optical parts, IK09 on housing and coupler
- All materials used in this product are WEEE and ROHS compatible.

Performance

- Rated luminous flux range: from 5 000 to 22 000 lm
- Rated luminaire efficacy: Up to 153 lm/W at 4000K
- Rated median useful life and the associated rated LM factor L80B50: > 121.000 hours
- Rated abrupt failure value: 3.12 %*
- Photometric code: 730/559, 740/559, 750/559
- Lumen maintenance code: 9
- Rated ambient temperature (tq) related to performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
**Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

- Side-mounting coupler for 30-60mm diameters and -15°, -10°, -5°, 0° tilt options
- Post top mounting coupler for 30-60mm diameters and 15°, 10°, 5°, 0° tilt options
- Weight: 8 kg
- Recommended mounting height: 4 - 15m
- Only two hand-tools required for installing the fixture
- Storage temperature up to 85ºC.
- Ambient temperature from -40ºC to 50ºC

Optics

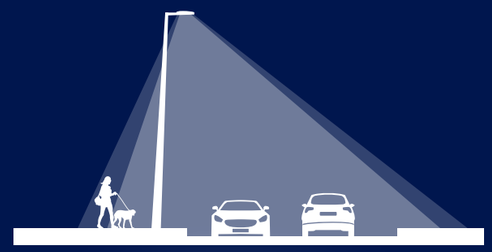
Available photometric distributions:

- C: optimized for high traffic ME class roads
- E: optimized for narrow S class roads
- F: optimized for wide S class roads

Rated colour rendering index >70
Rated correlated colour temperatures: 3000K, 4000K, 5000K
S/P rating for : 3000K: 1.24, 4000K: 1.47, 5000K:1.71
ULOR (Upward Light Output Ratio): 0

Rated initial chromaticity co-ordinate values

- CIE(x=0.43, y=0.403) 5SDCM
- CIE(x= 0.38, y= 0.38) 5SDCM
- CIE(x= 0.34, y= 0.35) 5SDCM

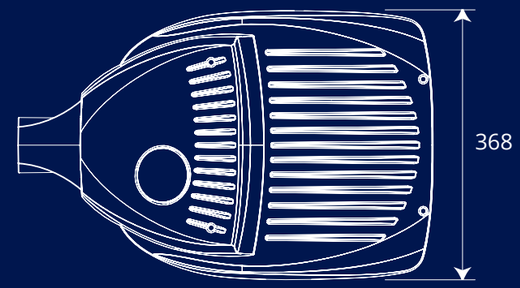


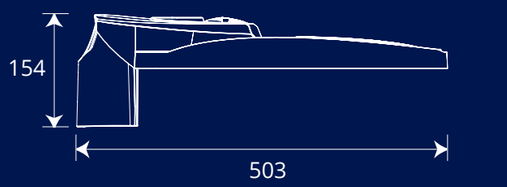
Optimized for high traffic ME class roads

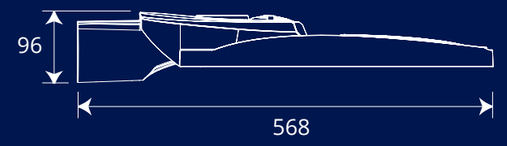
Electrical

Input voltage and frequency: 220-240V, 50-60Hz
Class I: standard, Class II: on request
Surge protection: 10 kV
Rated input power: 35W to 160W

Dimensions (mm)







Road and street lighting

Piko

Product information

Tungsram's LED road and street fixture, the PIKO, which makes the advantages of outdoor LED lighting available for everyone, even those on tight budgets. Designed to replace 11-36 W CFL and 35-70 W HID fixtures, the PIKO is a great LED solution for minor roads, residential streets and other public spaces where modest levels of illumination are required.

Application areas

- Street & residential road lighting
- Car park
- Pedestrian street
- Public area

Details

Piko

Driver feature

• Electronic, non-dimmable driver

Structures and materials

• Housing material: die-cast aluminium body, corrosion resistant screws
• Color: RAL7035
• Optical cover: tempered glass

Performance

• Rated luminous flux range: from 1 500 to 3 600 lm
• Rated luminaire efficacy: Up to 140 lm/W
• Photometric code: 730/559, 740/559, 750/559
• Rated median useful life and the associated rated LM factor: L80B50 > 110.000 hours
• Rated median useful life and the associated rated LM factor: L80B10 > 110.000 hours
• Rated median useful life and the associated rated LM factor: L90B50 > 54.000 hours
• Rated abrupt failure value: 10% at 50.000 hours
• Lumen maintenance code: 9
• Rated ambient temperature (tq) related to performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
**Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

• Side mount ø35mm-60mm
• Recommended mounting height: 4-8m
• Weight: 2 kg
• Only two hand-tools required for installing the fixture
• Storage temperature up to 85°C.
• Ambient temperature from -40°C to +35°C

Optics

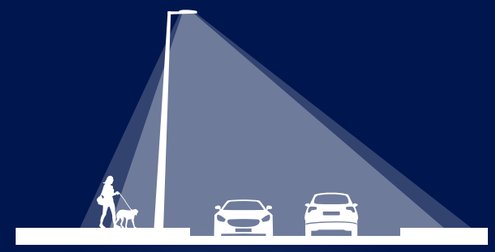
Available photometric distributions:

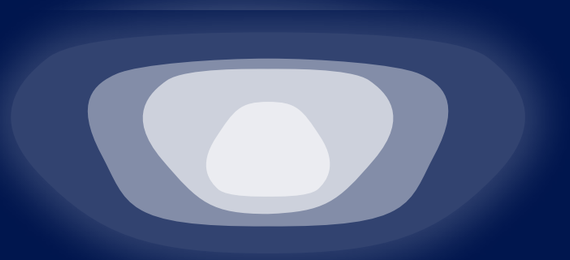
• C: optimized for low traffic M class roads
• E: optimized for narrow P type roads
• F: optimized for wide P type roads

Rated colour rendering index: >70
Rated correlated colour temperatures: 3000K, 4000K, 5000K
S/P rating for: 3000K - 1.33, 4000K - 1.56, 5000K - 1.78
ULOR: 0

Rated initial chromaticity co-ordinate values

3000K - CIE(x=0.43, y=0.403) 5SDCM
4000K - CIE(x= 0.38, y= 0.38) 5SDCM
5000K - CIE(x= 0.34, y= 0.35) 5SDCM



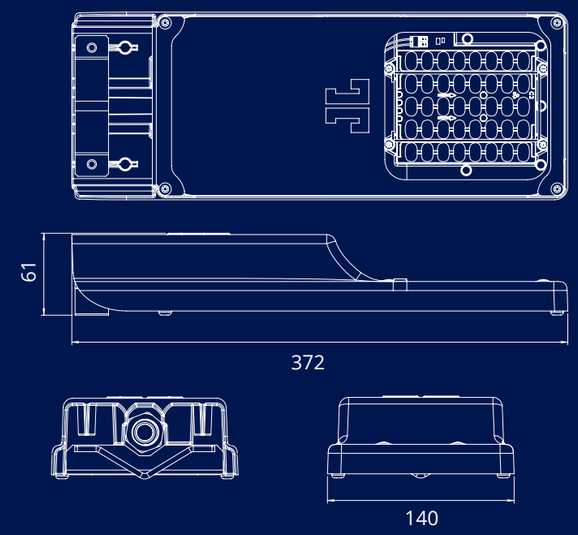


Optimized for residential area

Electrical

Input voltage and frequency: 220-240V, 50Hz
IEC Safety Classification: Class I
Driver surge immunity: 6kV
Rated input power: 12W to 28W

Dimensions (mm)



Road and street lighting

SLBt

Product information

Introducing our latest LED road and street fixture, the SLBt, which makes the advantages of outdoor LED lighting available for everyone, even those on tight budgets. Designed to replace 35-100W HID and 24-36W CFL fixtures, the SLBt is a great LED solution for minor roads, residential streets and other public spaces where modest levels of illumination is required.

Application areas

- Residental
- Road and street
  Motorways
- Car park

Details

SLBt

Driver feature

- Electronic, dimmable DALI driver with autonomous dimming: 15-70W.
- Constant Light Output (optional)

Structures and materials

- Housing material: die-cast aluminium body, corrosion resistant screws and brackets
- Optic material: coated polycarbonate or aluminium
- Colour: RAL7035
- Optical cover: UV stabilized polycarbonate
- All materials used in this product are WEEE and ROHS compatible.

Performance

- Rated luminous flux range: from 1 200 to 8 200 lm at 4000K
- Rated luminaire efficacy: up to 122 lm/W at 4000K.
- Photometric code: 727/559 , 730/559, 740/559
- Rated median useful life and the associated rated LM factor L80B50: > 218.000 hours
- Rated abrupt failure value: 11.5 %
- Lumen maintenance code: 9
- Rated ambient temperature (tq) related to Performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
**Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

- Side mount bracket ø42mm-60mm
- Post top bracket ø48mm-76mm
- Universal coupler side ø35mm-76mm
- Universal coupler post ø35mm-76mm
- Bracket can be adjusted: 0°, +5° (with accessories -5° also available)
- Universal Coupler can be adjusted -15°,-10°, -5°, 0°, +5°,+10°, +15° by 5°degree steps
- Recommended mounting height: 4-15m
- Weight: 5 kg
- Only two hand-tools required for installing the fixture
- Storage temperature up to 85ºC.
- Ambient temperature from -40ºC to 35ºC

Optics

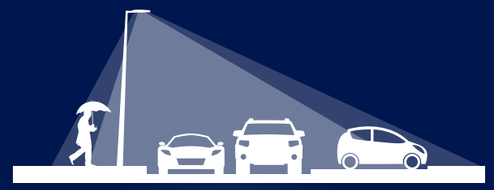
Available photometric distributions:

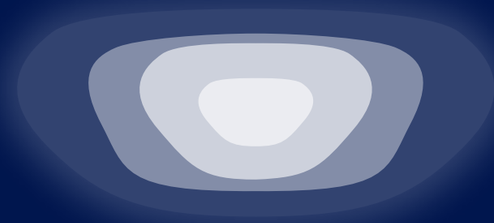
- Narrow Asymmetric – medium (B, B2, B5)
- Asymmetric – short (C, C5)
- Asymmetric forward – very short (D)
- Asymmetric – medium (E, E2, E5)
- Forward asymmetric – medium (F, F5, G2)
- Narrow asymmetric – short (N)
- Narrow asymmetric with backlight – short (P, P5)
- Narrow asymmetric – medium (R)
- Narrow asymmetric – medium (S)
- Asymmetric – short (T)
- Asymmetric – medium (U)
- Pedestrian cross walk (X5, Z5)
- Symmetric – medium (Y5)

Rated colour rendering index:>70
Rated correlated colour temperatures*: 2700K, 3000K, 4000K
S/P rating for : 2700K: 1.09 , 3000K: 1.33, 4000K: 1.56
ULOR (Upward Light Output Ratio): 0

Rated initial chromaticity co-ordinate values

- CIE(x=0.43, y=0.403) 5SDCM
- CIE(x= 0.38, y= 0.38) 5SDCM
- CIE(x=0.4578, y=0.4101) 5SDCM



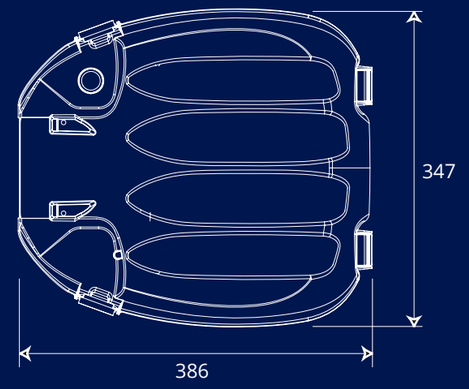


Asymmetric – short

Electrical

Input voltage and frequency: 220-240V, 50-60Hz
Class I: standard, Class II: on request
Surge protection: 10 kV
Rated input power: 15W to 70W

Dimensions (mm)



Road and street lighting

SMBt

Product information

Our LED roadway lighting fixture makes all the advantages of LED lighting available for a wide audience. Designed to replace 35-150W HID fixtures, SMBt is a great LED solution for minor roads, residential streets and other public spaces where modest level of illumination is required.

Application areas

- Residental
- Road and street
  Motorways
- Car park

Details

SMBt

Driver feature

- Electronic, dimmable (DALI) driver with autonomous dimming: 50W-160W
- Minimum dimming level 20W
- Constant Light Output (optional)

Structures and materials

- Housing material: die-cast aluminium body, corrosion resistant screws and brackets
- Optic material: coated polycarbonate or aluminium
- Optical cover: glass
- Colour: RAL7035
- All materials used in this product are WEEE and ROHS compatible.

Performance

- Rated luminous flux range: from 6 400 to 18 700 lm at 4000K
- Rated luminaire efficacy: Up to 146 lm/W at 4000K.
- Photometric code: 730/559, 740/559
- Rated median useful life and the associated rated LM factor L80B50: > 102.000 hours
- Rated abrupt failure value: 11.5 %
- Lumen maintenance code: 9
- Rated ambient temperature (tq) related to performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
**Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

- Side mount bracket ø42mm-60mm
- Post top bracket ø42mm-76mm
- Universal coupler side ø35mm-76mm
- Universal coupler post ø35mm-76mm
- Bracket can be adjusted: -5°, 0°, +5°
- Universal Coupler can be adjusted -15°,-10°, -5°, 0°, +5°,+10°, +15° by 5°degree steps
- Weight: 7,5 kg
- Storage temperature up to 85ºC.
- Ambient temperature from -40ºC to +50ºC up to 140W
  +40ºC up to 160W

Optics

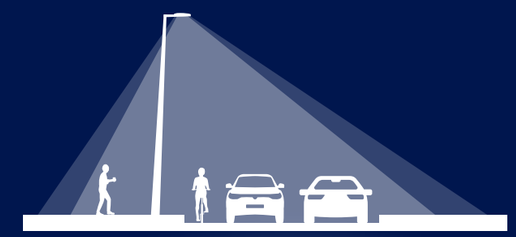
Available photometric distributions:

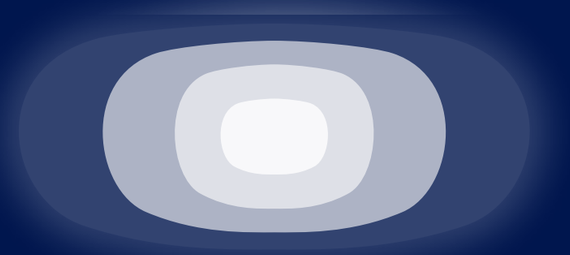
- Narrow Asymmetric – medium (B, B2, B5)
- Asymmetric – short (C, C5)
- Asymmetric forward – very short (D)
- Asymmetric – medium (E, E2, E5)
- Forward asymmetric – medium (F, F5)
- Narrow asymmetric – short (N)
- Narrow asymmetric with backlight – short (P, P5)
- Asymmetric – short (T)
- Pedestrian cross walk (X5, Z5)
- Symmetric - (Y5)
- Asymmetric – medium (U)

Rated colour rendering index:>70
Rated correlated colour temperatures: 3000K, 4000K
S/P rating for : 3000K: 1.33, 4000K: 1.56
ULOR (Upward Light Output Ratio): 0

Rated initial chromaticity co-ordinate values

- CIE(x=0.43, y=0.403) 5SDCM
- CIE(x= 0.38, y= 0.38) 5SDCM



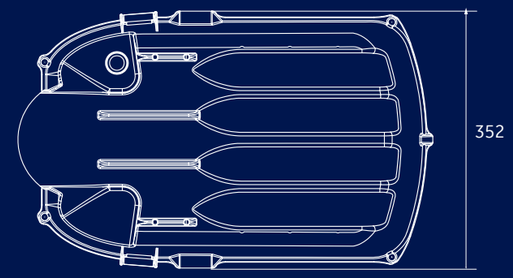


Narrow Asymmetric – medium

Electrical

Input voltage and frequency: 220-240V, 50-60Hz
Class I: standard, Class II: on request
Surge protection: 10 kV
Rated input power: 52W to 158W

Dimensions (mm)



Decorative & Pedestrian lighting

Decorative & Pedestrian lighting

Navona

Product information

Navona is a LED solution to replace traditional fixtures in parks, pedestrian areas, city centers. Timeless design incorporates the aesthetic necessities with the optimal optical distribution, providing several lumen packages with symmetrical and asymmetrical distribution and a power range from 16W to 72W to meet a wide range of lighting scenarios. Navona offers a major increase in both vertical and horizontal uniformity. Combined with the high chromatic reproduction contributed by LED technology (white light), this uniform quality facilitates face recognition and visual comfort. Its advanced optical design enables the light to be directed specifically where it is needed.

Application areas

- Residental
- City centres (road classifications: from P2 to P6)
- Parks

Details

Navona

Driver feature

• Electronic, programmable & dimmable (DALI and 0-10V**).
Controllable driver with astronomical clock availability.
Controls system inputs: Analog, DALI, Dynadim
** In case of 0-10V control please do not dimming below 40%.

Structures and materials

• Housing material: in three pieces (upper-housing, lowerhousing and arm with coupler), all made from die-cast aluminium with a polyester powder paint finish and oven cured.
• Surface finish: polyester powder coat
• Colour: RAL9007
• Optical cover:flat tempered glass
• All materials used in this product are WEEE and ROHS compatible.

Performance

• Rated luminous flux range: 1 700 to 7 600 lm
• Rated luminaire efficacy: Up to 118 lm/W
• Rated median useful life and the associated rated LM factor L80B50: > 200.000 hours
• Rated abrupt failure value: 13.2 %*
• Photometric code: 727/559 , 730/559, 740/559
• Lumen maintenance code: 9
• Rated ambient temperature (tq) related to performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
** Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

• 1- and 2-arm through 42-48, 60, 76 mm standard post top mounting. Side mounting through 60 mm diameter pole.
• Weight: 11,2 kg
• Recommended mounting height: 4-6 m
• Ambient operating temperature: -30°C to 50°C
• Storage temperature: up to 85°C

Optics

Available photometric distributions:

• Asymmetric Forward Clear (AFC)
• Asymmetric Wide Clear (AWC)
• Asymmetric Narrow Clear (ANC)
• Asymmetric Wide Diffuser (AWD)
• Symmetric Wide Clear (SWC)
• Symmetric Wide Diffuser (SWD)
• Symmetric Forward Clear (SFC)

Rated colour rendering index >70
Rated correlated colour temperatures: 2700K, 3000K, 4000K
ULOR (Upward Light Output Ratio): 0
S/P rating for : 2700K: 1.09, 3000K: 1.24, 4000K: 1.47

Rated initial chromaticity co-ordinate values

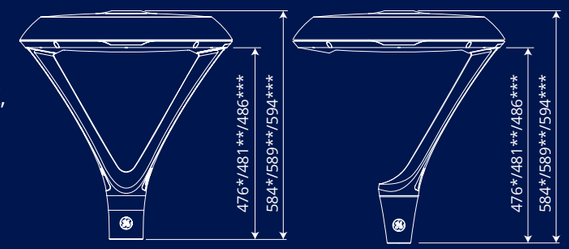
• CIE(x=0.43, y=0.403) 5SDCM
• CIE(x= 0.38, y= 0.38) 5SDCM
• CIE(x=0.4578, y=0.4101) 5SDCM

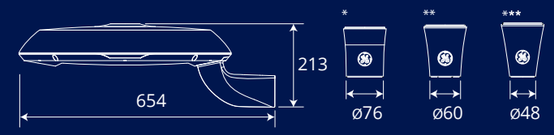
Symmetric Wide, Forward

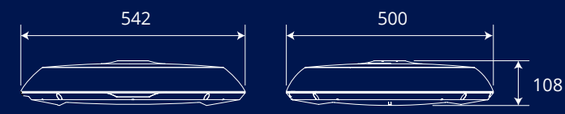
Electrical

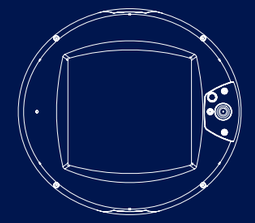
Input voltage and frequency: 220-240V, 50-60Hz
IEC Protection Class: Class I
Surge protection: 10 kV
Rated input power: 20W to 70W

Dimensions (mm)









Decorative & Pedestrian lighting

Nobila

Product information

Introducing Tungsram's latest LED decorative fixture, the Nobila, which has the advantage of aesthetic outdoor luminaires with great performance. Designed to replace 35-100 W HID and 24-36 W CFL fixtures, the Nobila is a great LED solution for roads, where heritage style is needed.

Application areas

- Pedestrian street
- Car park
- Street & residential road lighting

Details

Nobila

Driver feature

- Electronic, dimmable driver: Dali, CLO and dynadim from 20-90W
- minimum dimming level 5,5 W

Structures and materials

- Housing material: die-cast aluminium body, corrosion resistant screws
- Color: RAL9005 or any RAL color
- Optic material: coated polycarbonate
- Optical cover: UV stabilized polycarbonate
- Gear Tray material: galvanized steel

Performance

- Rated luminous flux range: from from 2 600 to 9 700lm at 4000K
- Rated luminaire efficacy: Up to 135lm/W at 4000K
- Photometric code: 730/559, 740/559
- Rated median useful life and the associated rated LM factor L80B50: > 100.000 hours
- Rated abrupt failure value: <10% (100.000 hours)
- Lumen maintenance code: 9
- Rated ambient temperature (tq) related to performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
** Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

- Post top coupler ø48mm-76mm
- Recommended mounting height: 4-15m
- Weight: 6 kg
- Only two hand-tools required for installing the fixture
- Storage temperature up to 85ºC.
- Ambient temperature from -40ºC to +50ºC

Optics

Lens layout (4 lenses in every scenario):
- A: asymmetric
- S: symmetric
- C: circular

Available photometric distributions:
- C: optimized for high traffic ME class roads
- E: optimized for narrow S type roads
- F: optimized for wide S class roads
- AC - asymetric C
- AE - asymetric E
- AF - asymetric F
- SC - symmetric C
- SE - symmetric E
- SF - symmetric F
- CC - circular C
- CE - circular E
- CF - circular F

Rated colour rendering index: >70
Rated correlated colour temperatures: 3000K, 4000K
S/P rating for: 3000K - 1.33, 4000K - 1.56
ULOR: 0

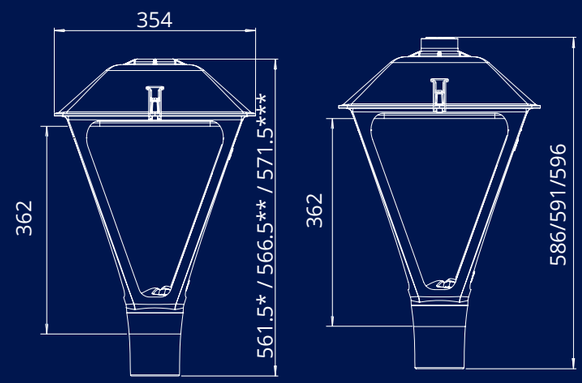
Rated initial chromaticity co-ordinate values
3000K - CIE(x=0.43, y=0.403) 5SDCM
4000K - CIE(x= 0.38, y= 0.38) 5SDCM

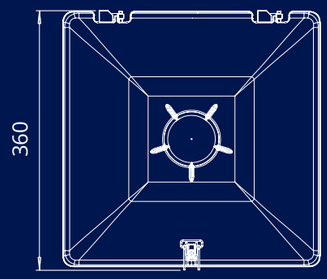
Symmetric Wide, Forward

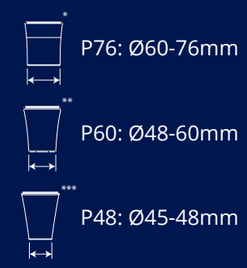
Electrical

Input voltage and frequency: 220-240V, 50-60Hz
Class I, Class II
Surge protection: 10kV
Rated input power: 21W to 86W

Dimensions (mm)







Canopy & Area lighting

Area lighting

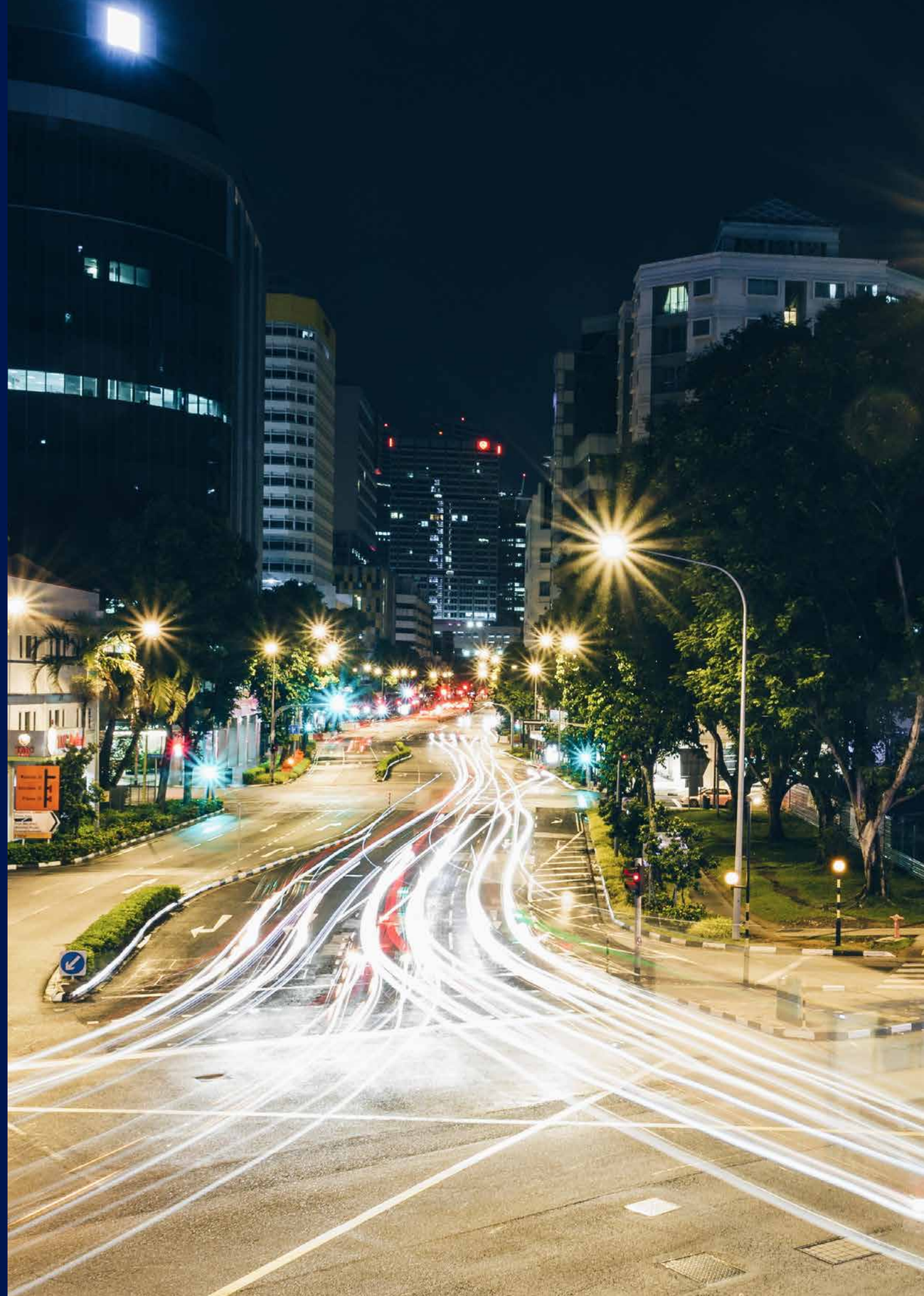
ALIx

Product information

ALIx LED outdoor luminaire delivers outstanding features, style and attractive form factor. This latest design offers excellent efficacy even at higher lumen outputs to meet a wide range of area lighting needs. Using reflective optic technology, Tungsram offers superior horizontal and vertical illuminance with high uniformity, while minimizing glare. This system delivers unusually low perceived glare when viewed from beneath. ALIx provides reduced energy consumption, combined with a long rated life that virtually eliminates ongoing maintenance expenses, enabling significant operating cost benefits over the life of the fixture.

Application areas

- Car park
- Industrial & logistic
- Shopping centres
- Pedestrian crossings



Details

ALIx

Driver feature

- Electronic, dimmable (DALI) driver with autonomous dimming: 32-140W
- Minimum dimming level 15W
- DynaDimmer
- Constant Light Output

Structures and materials

- Housing material: die-cast aluminium body, corrosion resistant screws and brackets
- Optic material: highly reflective aluminium coated plastic
- Optical cover: tempered glass
- Colour: RAL9007
- All materials used in this product are WEEE and ROHS compatible.

Performance

- Rated luminous flux range: from 3 600 to 17 600 lm at 5000K
- Rated luminaire efficacy: Up to 140lm/W at 5000K.
- Photometric code: 730/559, 740/559, 750/559
- Rated median useful life and the associated rated LM factor L80B50 > 131.000 hours
- Rated abrupt failure value: 2.5 %
- Lumen maintenance code: 9
- Rated ambient temperature (tq) related to performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
**Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

- Coupler ø60mm for side-mount or post-top
- Adjustable bracket (between -85° and 85° from horizontal)
- Recommended mounting height: 8-15m
- Tool-less driver maintenance
- Storage temperature up to 85ºC.
- Operating temperature from -40ºC to 50ºC

Optics

Available photometric distributions:

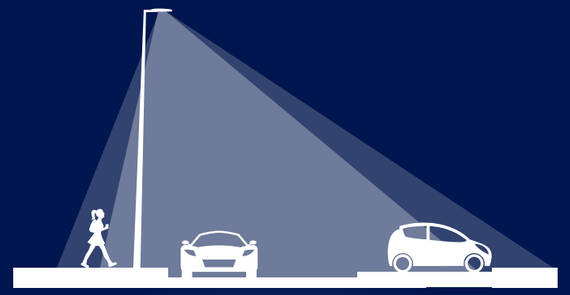
- Asymmetric Forward (AF)
- Asymmetric Wide (AW)
- Asymmetric Narrow (AN)
- Asymmetric Extra Wide Flood (AEF)
- Asymmetric Forward Throw Narrow* (AFN)
- Symmetrical Wide Flood (SWF)
- Symmetrical Narrow Spot (SNS)

*AFN optics only available with Powers 100W &140W

Rated colour rendering index:>70 at 4000K
Rated correlated colour temperatures: 3000K, 4000K,5000K
S/P rating for : 3000K: 1.24, 4000K: 1.47, 5000K:1.71
ULOR (Upward Light Output Ratio): 0

Rated initial chromaticity co-ordinate values

- CIE(x=0.43, y=0.403) 5SDCM
- CIE(x= 0.38, y= 0.38) 5SDCM
- CIE(x= 0.34, y= 0.35) 5SDCM

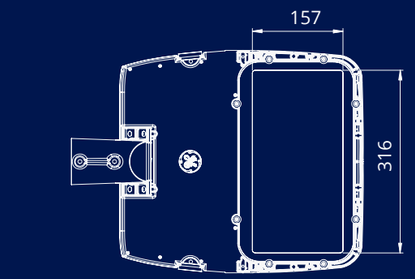


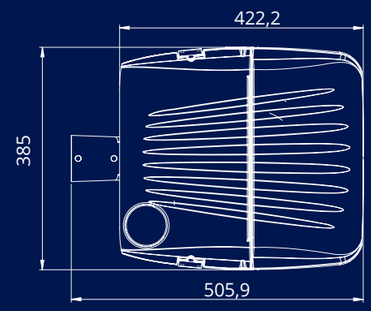
Asymmetric Narrow

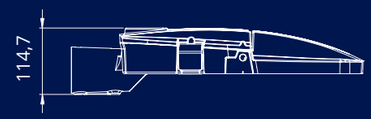
Electrical

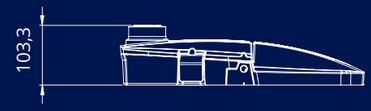
Input voltage and frequency: 220-240V, 50-60Hz
Class I, Class II
Surge protection: 10 kV
Rated input power: 31W to 142W

Dimensions (mm)









Canopy lighting

AMIx

Product information

AMIx is our latest LED canopy fixture, provides a flexible and rapid installation solution for petrol stations, high bays, parking garages, industrial and other lighting application areas. AMIx is ideally suited both for replacing traditional fixtures such as HID luminaires and for new installations.

Application areas

- Parking garages
- Petrol station
- Industrial
  High bay
- Floodlighting

Details

AMIx

Driver feature

- Electronic, dimmable driver
- 150 W with DALI control

Structures and materials

- Housing material: die-cast and sheet metal aluminium body,stainless steel screws and brackets
- Surface finish: polyester powder coat
- Colour: RAL9003
- Optical cover: tempered low-iron glass
- All materials used in this product are WEEE and ROHS compatible.

Performance

- Rated luminous flux range: 4 500 to 18 800 lm
- Rated luminaire efficacy: Up to 134lm/W
- Rated median useful life and the associated rated LM factor L80B50: > 189.000 hours
- Rated abrupt failure value: 12.8 %*
- Photometric code: 730/559, 740/559
- Lumen maintenance code: 9
- Rated ambient temperature (tq) related to performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
**Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

- Bezel, surface mount and flood
- Weight: 9kg
- Recommended mounting height: 4-6 m
- Ambient operating temperature: -40°C to 50°C
- Storage temperature: up to 85°C

Optics

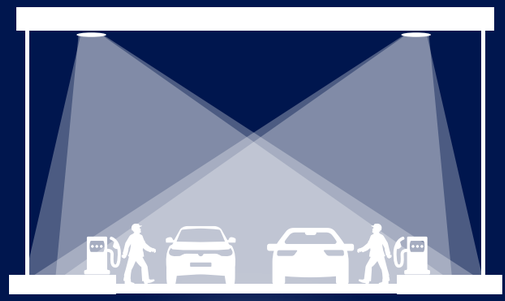
Available photometric distributions:

- S25-symmetric 25°
- S35- symmetric 35°
- S55- symmetric 55°
- A25- asymmetric 25°
- A35- asymmetric 35°
- A55- asymmetric 55°

Rated colour rendering index >70
Rated correlated colour temperatures: 3000K, 4000K
S/P rating for 3000K: 1,33; 4000K: 1,56
ULOR (Upward Light Output Ratio): 0

Rated initial chromaticity co-ordinate values

CIE(x= 0.43, y= 0.403) 5SDCM
CIE(x= 0.38, y= 0.38) 5SDCM

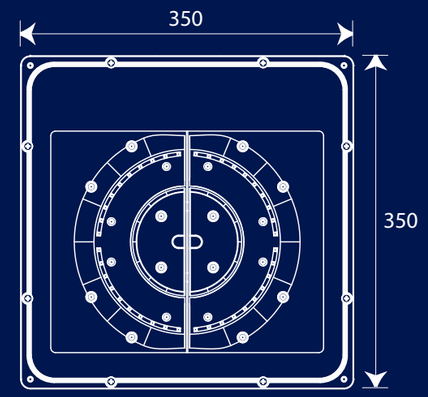


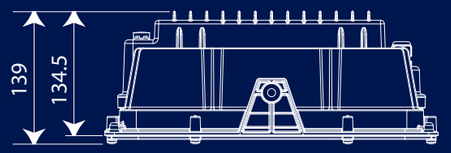
Asymmetric 55°

Electrical

Input voltage and frequency: 220-240V, 50-60Hz
IEC Protection Class: Class I
Surge protection: 10 kV
Rated input power: 55W to 150W

Dimensions (mm)





Area lighting

AHIx

Product information

AHIx luminaire offers an optimal LED lighting solution for high lumen package applications. Tried and tested reflective optic technology, combined with the effective thermal management, excellent light efficiency can be maintained throughout the whole lifetime of the luminaire, even under extreme thermal conditions. A wide range of different light distributions makes this luminaire versatile and flexible for numerous application areas. AHIx is a perfect choice for high power LED lighting applications where optical flexibility and reliability are critical.

Application areas

- Industrial & Maintenance
- Logistical areas: airports, ports, trains
- Car park
- Sport

Details

AHIx

Driver feature

- Electronic dimmable Dali driver
- Minimum dimming level: 30%

Structures and materials

- Housing material: die-cast and sheet metal aluminium body,stainless steel screws and brackets
- Surface finish: polyester powder coat
- Colour: RAL9007
- Optical cover: tempered low-iron glass
- All materials used in this product are WEEE and ROHS compatible.

Performance

- Rated luminous flux range: 21 000 to 37 600 lm at 5000K
- Rated luminaire efficacy: Up to 133lm/W
- Rated median useful life and the associated rated LM factor L80B50: > 110.000 hours
- Rated abrupt failure value: 3.12 %*
- Photometric code: 740/559, 750/559
- Lumen maintenance code: 9
- Rated ambient temperature (tq) related to performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
**Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

- Adjustable stirrup
- Weight: 15kg
- Recommended mounting height: 10-40 m
- Ambient operating temperature: -40°C to 50°C
- Storage temperature: up to 85°C

Optics

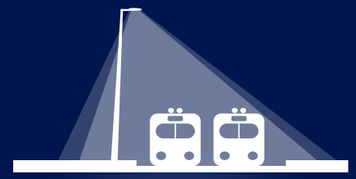
Available photometric distributions:

- Asymmetric Forward (AF)
- Asymmetric Wide (AW)
- Asymmetric Narrow (AN)
- Asymmetric Extra Wide Flood (AEF)
- Asymmetric Forward Throw Narrow (AFN)
- Symmetric Wide Flood (SWF)
- Symmetric Narrow Spot (SNS)
- Symmetric Forward (SF)
- Symmetric Wide (SW)

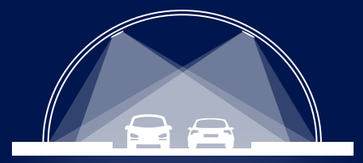
Rated colour rendering index >70
Rated correlated colour temperatures: 3000K, 4000K, 5000K
ULOR (Upward Light Output Ratio): 0

Rated initial chromaticity co-ordinate values

- CIE(x= 0.38, y= 0.38) 5SDCM
- CIE(x= 0.34, y= 0.35) 5SDCM



Asymmetric Wide



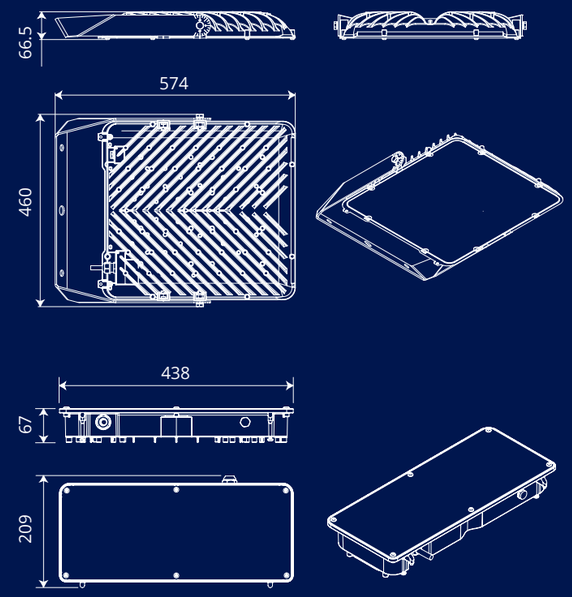
Asymmetric Forward

Electrical

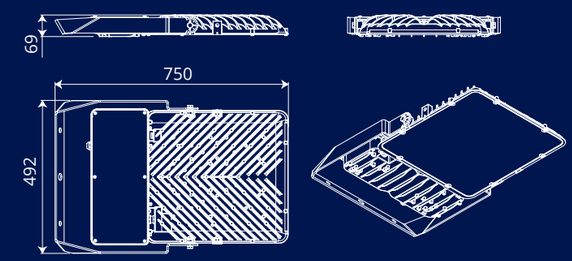
Input voltage and frequency: 220-240V, 50-60Hz
IEC Protection Class: Class I
Surge protection: 10 kV
Rated input power: 200W to 300W

Dimensions (mm)

AHIx Remote Driver Luminiare
(RST and RSP Accessory Options)



AHIx Integrated Luminiare
(ST and SP Accessory Options)



Tunnel lighting

Tunnel lighting

TLBt & TMBt

Product information

TLBt & TMBt are specially designed for tunnel lighting and available in a wide range for low and high speed tunnels,underpasses and other applications. Maintenance in a tunnel can cause a headache for the operators and for the users as well. The engineers therefore put major focus on developing a highly durable and reliable product with a long lifetime. The products provide easy and fast installation and maintenance to save time and cost. Safety is another important aspect in which lighting plays a key role. Our tunnel lighting solution can improve visibility for drivers with better light quality and as a result they can react faster to emergencies and other situations in tunnels.

Application areas

- Industrial
- Floodlight
- Underpasses

Details

TLBt & TMBt

Driver feature

- Electronic dimmable Dali driver
- Minimum dimming level: 30%

Structures and materials

- Housing material: die-cast aluminium
- Optical material: aluminised plastic
- Optical cover: tempered glass
- Colour: RAL9005
- All materials used in this product are WEEE and ROHS compatible.

Performance

- Rated luminous flux: from 4 250 to 9 800 lm (TLBt)
- Rated luminous flux: from 14 500 to 22 840 lm (TMBt)
- Rated luminaire efficacy: up to 120 lm/W
- Rated median useful life and the associated rated LM factor L80B50: > 181.000 hours
- Rated abrupt failure value: 3.12 %*
- Lumen maintenance code: 9
- Rated ambient temperature (tq) related to performance for a luminaire: 25°C

* Definitions and tolerances according to IEC 62722-2-1.
**Rated abrupt failure value depends on the configuration type.

Installation and maintenance

Mounting options

- Two types of fixing bracket are available: short arm for ceiling mounting, and long arm for wall mounting. Additional mounting solutions are available on request.
- Weight: 9 Kg
- Recommended mounting height: 4-8 m
  The LED light engine and driver are replaceable without the need of tools, enabling a quick and easy maintenance solution
- Recommended maintenance factor for lighting design: 0.8
- Ambient temperature from -40ºC to 50ºC
- Storage temperature up to 85ºC

Optics

Available photometric distributions:

- Extra narrow Asymmetric – medium (A)
- Narrow Asymmetric – medium (B, AQ)
- Asymmetric – short (C)
- Asymmetric forward – very short (D)
- Asymmetric – medium (E)
- Extra narrow Symmetric – medium (SA)
- Narrow Symmetric – medium (SB)
- Symmetric – short (SC)
- Symmetric forward – very short (SD)
- Symmetric – medium (SE, Y)
- Rated colour rendering index:>70

Rated correlated colour temperatures: 4000K
S/P rating for 4000K: 1.56
ULOR (Upward Light Output Ratio): 0

Rated initial chromaticity co-ordinate values

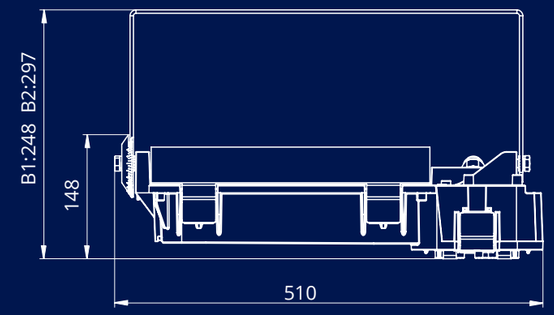
- CIE(x= 0.38, y= 0.38) 5SDCM

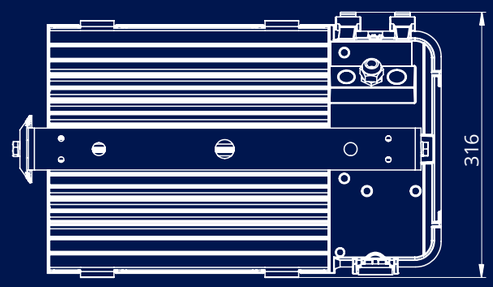
Symmetric Medium

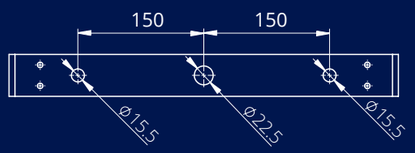
Electrical

Input voltage and frequency: 220-240V, 50-60Hz
Class I: standard, Class II: on request
Surge protection: 10 kV
- Rated input power: from 32W to 89W(TLBt)
- Rated input power: from 130W to 151W (TMBt)

Dimensions (mm)







Tunnel lighting overview

What you need to know about tunnel lighting

Tunnel Lighting should provide the driver with the same safety and comfort as driving on an open road. There should be a smooth lighting transition from approaching, transiting and exiting the tunnel, to help the drivers see all obstacles in the environment and the behaviour of other road users.

Tunnel lighting

Good tunnel lighting takes care of good visibility conditions for the road users, this requires lighting levels that are matched with the adaptation level of the users' eyes. As this adaptation level gradually changes while travelling through the tunnel, for lighting purposes the tunnel can be divided lengthwise into five zones: the access, threshold, transition, interior and exit zone.
The decision whether a tunnel or underpass has to be lit during the day depends on

- the length of the tunnel
- the visibility of the exit
- the amount of natural light in the tunnel
- the traffic density.

The access zone

The access zone is not a part of the tunnel itself, but the approach road immediately before the tunnel entrance. The drivers' vision will have to adapt to the conditions in the tunnel. It is very important that the drivers should be able to see any obstacles or any kind of danger even from this access zone, so that they can react on time.

The threshold zone

The required luminance level in the first section of the threshold zone of the tunnel, which length is equal to the safe stopping distance, will proportionally reduce the amount of light and energy needed. In the second half of the threshold zone the luminance level is decreased rapidly to 40 % of the initial level.

Transition zone

In the transition zone the lighting level is gradually reduced further. The reduction speed is related to the adaptation speed of the eyes but the steps of the reduction should not exceed a ratio of 3:1.

Interior zone

In the interior zone the required lighting levels are related to the structure and size of the tunnel, the speed of the traffic and the traffic density.

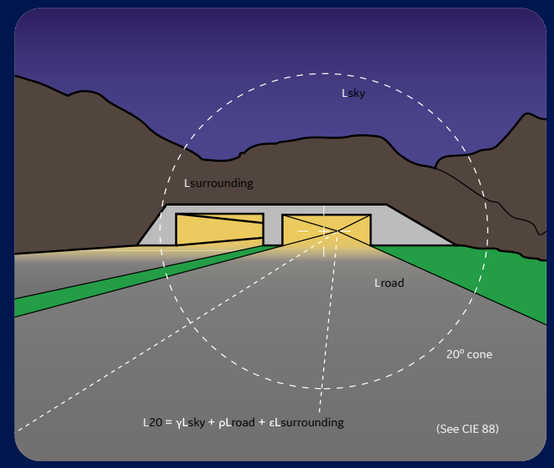
Exit zone

In the exit zone the tunnel lighting has to prepare the eye of the drivers for the outside conditions. Even though visual adaptation from low to high level takes place instantaneously, but there are other reasons for installing an increased lighting level in the exit zone:

- to make following cars more visible in the rear-view mirror of a car leaving the tunnel
- to prepare the driver in case of an emergency when exiting the tunnel.

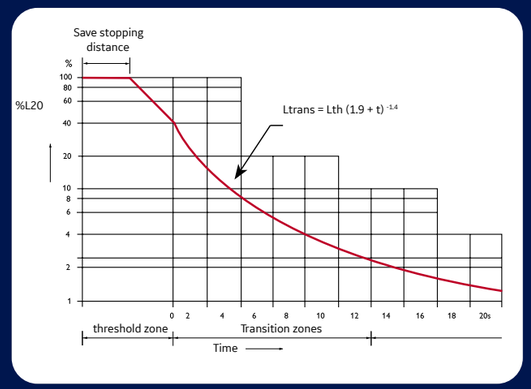
Emergency lighting

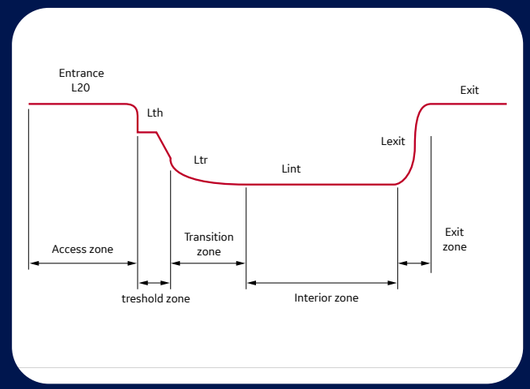
Emergency lighting is usually part of the lighting system and guarantees minimal light when the power supply is interrupted.



Recommended threshold/access zone luminance ratios		
Stopping distance (m)	Symmetrical lighting system Lth/ L20	Counter-beam lighting system Lth/ L20
60	0.05	0.04
100	0.06	0.05
160	0.10	0.07

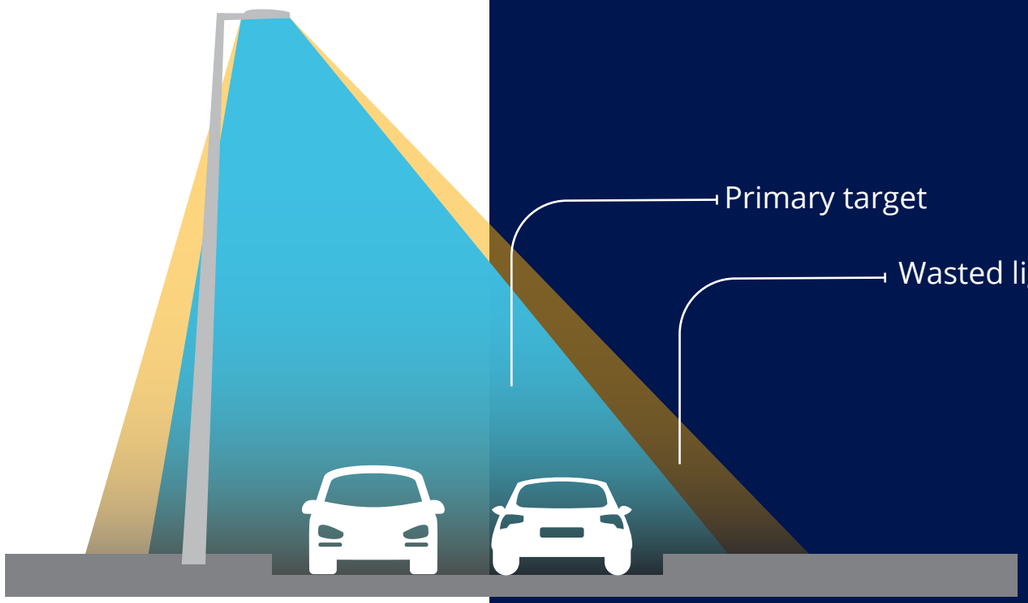
Recommended interior zone luminances (cd/m2)			
Stopping distance (m)	Traffic density		
	<100 veh/h	100<veh/h<1000	>1000 veh/h
60	0.05		0.04
100	0.06		0.05
160	0.10		0.07





Reflective vs Refractive

Great utilisation factor



The perceived direct glare of refractive optics is greater than reflective optics.

Reflective Strengths

Application efficiency
Colour dispersion
Longevity

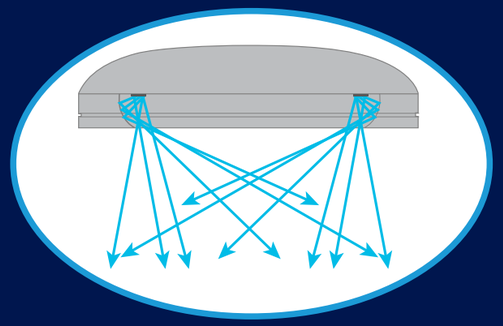
Refractive Strengths

Thermal behavior
Luminaire size

Like for like

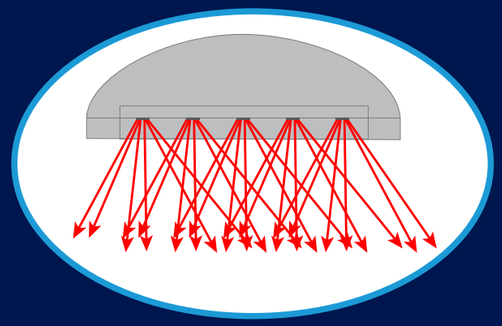
Uniformity
Maintenance
Manufacturing

Reflective

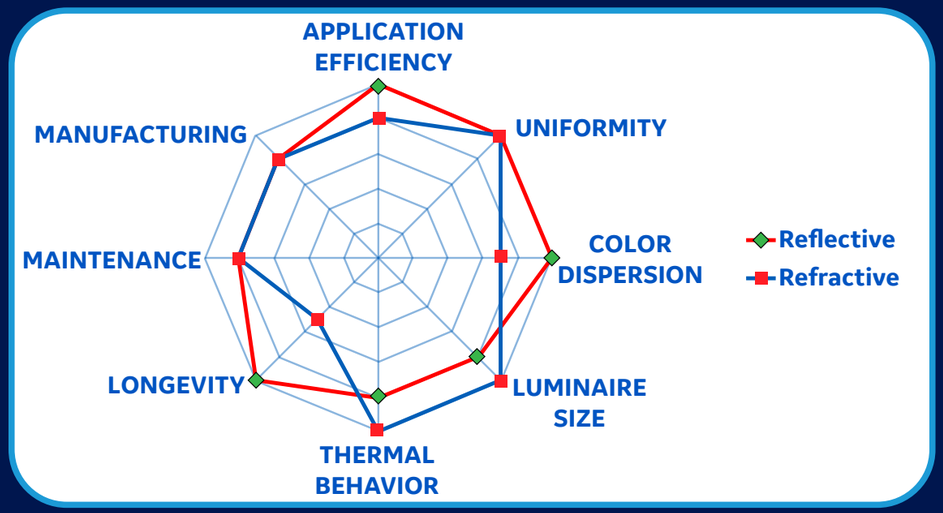


Minimized visibility to LED light source, creating non-pixilated appearance to driver's field of view

Refractive

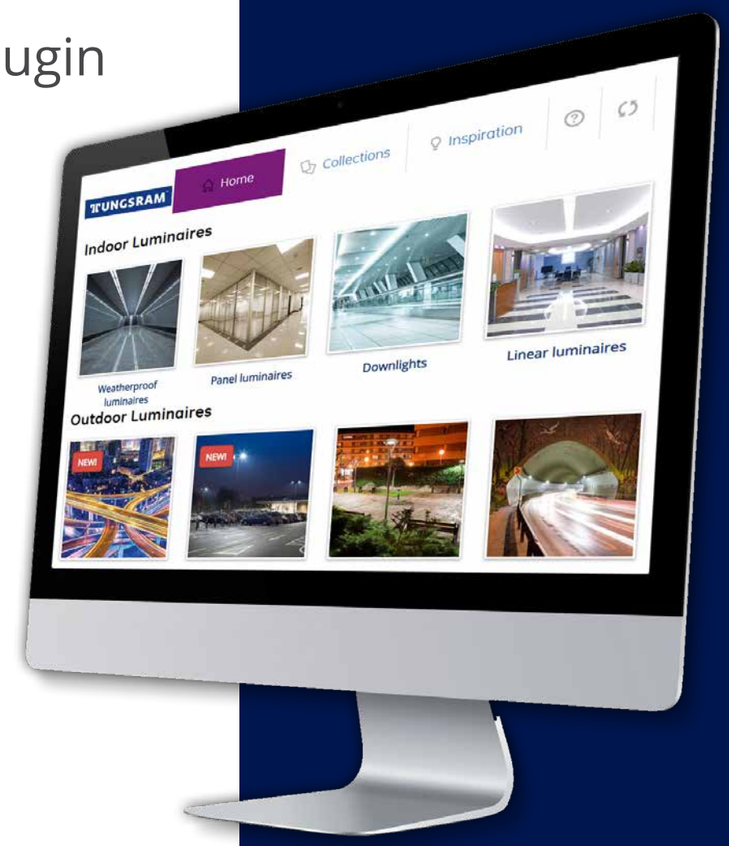


Visibility to every LED, creating a pixilated appearance and increased glare to driver's field of view



DIALux

Lighting Designer software
Dialux
Offline plugin



You can carry out simple and professional light planning by using the Dialux plug-in. Save time through a new user experience. The plugin is filled with plenty of additional solutions like customizable collections, inspirational materials and a completely up-to-date product catalogue.

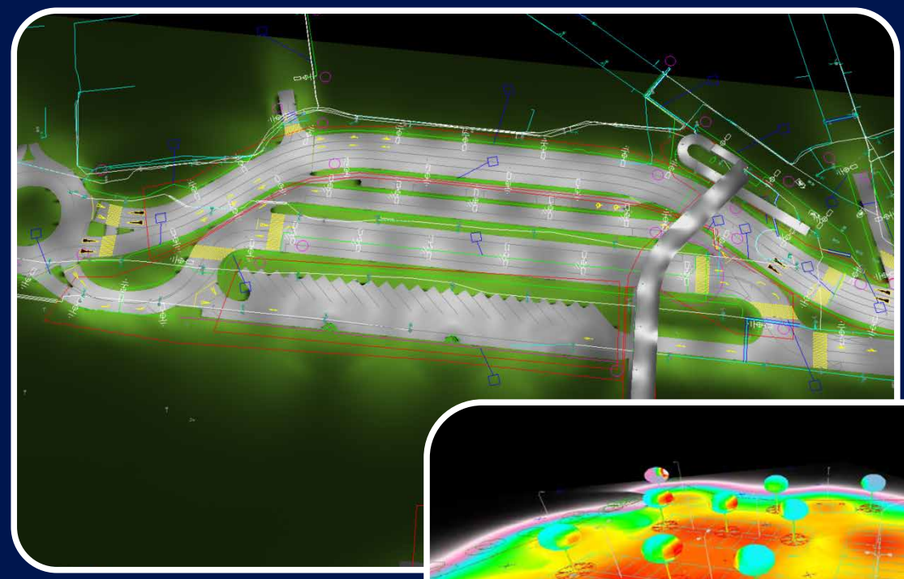
Key plug-in features

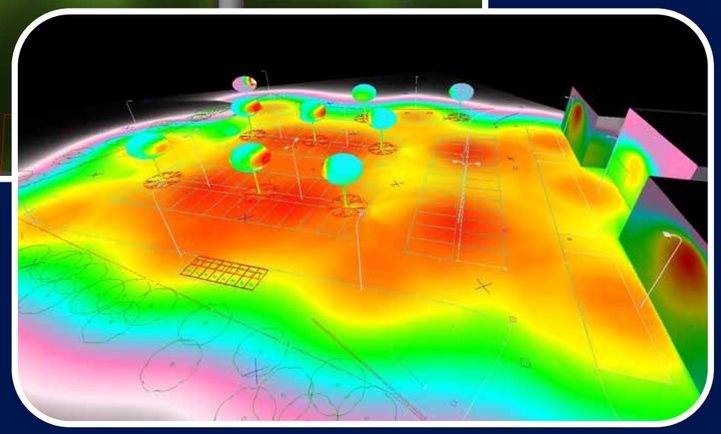
- Fast and efficient
- Up to date product info
- Custom collection
- Inspiration material
- New interface
- Industry relevant news

With the plugin you will have the chance to find the products you need quickly and create a digital design of your ideas with Dialux. It's simple and efficient – just like the professional lighting solutions.

What are the benefits of Dialux?

- Simple, effective and professional light planning
- Latest “state of the art” software, always available free of charge
- Fits perfectly into designers' existing workflow.
- Energy evaluation is simple and quick
- Colored light scenes with LED or other luminaires





You can find all our indoor and outdoor luminaires and the related technical files in our eCatalogue as part of our website – **www.tungsram.com** .

Order logics

Name	Gen.	Nominal Lumen (lm)	Optics	CCT (K)	Option list	Accessories	Control	IEC Protection Classes	Precabling	Mounting	Color
INM	1	**14000** **16000** **18000** **20000** **22000** **24000** **26000**	**AAA** **BBB** **CCC** **DDD** **EEE** **FFF** **GGG**	**730** - 3000K 70 CRI **740** - 4000K 70 CRI **750** - 5000K 70 CRI	**S** [1] **N** [2] **E** [3]	**NO** - No Accessory **FU** - Fuse **SP** - Extra surge protection **FS** - Fuse + extra surge protection	**N** - No control **D** - DALI external **Yxx** - Dynadim* **NLxx** - No control+ CLO* **DLxx** - DALI+CLO* **YLxx** - Dynadim+ CLO*	**C1** - Class I	**NP** - No precabling **PC** - Precabling with XX meters	**48** - Universal 30-48mm **60** - Universal 42-60mm	R7021 Rxxxx*

Example: INM1-22000CCC740-SSPD-C1PC60

* all symmetric optic combinations are valid eg. ABA, but ABC is not
* x is integer number 0-9
* N from option list is only available with SP or FS from accessories

[1] Standard option. This version comes with the toolless opening feature and the toollessly replaceable geartray. All accessory combinations are valid with this option.
[2] NEMA socket option. This version comes with the toolless opening feature and the toollessly replaceable geartray and an extra surge protector to protect your smart devices. Only the fuse can be choosen from the accessory list for this option.
[3] Eco version. This version comes with a precable and can not be opened. Parts are non-user replaceable. All accessory combinations are invalid for this option.

Name	Gen.	Nominal Lumen (lm)	Optics	CCT (K)	Option list	Accessories	Control	IEC Protection Classes	Precabling	Mounting	Color
INL	1	**25000** **27500** **30000** **32500** **35000** **37500** **40000**	**AAA** **BBB** **CCC** **DDD** **EEE** **FFF** **GGG**	**730** - 3000K 70 CRI **740** - 4000K 70 CRI **750** - 5000K 70 CRI	**S** [1] **N** [2] **E** [3]	**NO** - No Accessory **FU** - Fuse **SP** - Extra surge protection **FS** - Fuse + extra surge protection	**N** - No control **D** - DALI external **Yxx** - Dynadim* **NLxx** - No control+ CLO* **DLxx** - DALI+CLO* **YLxx** - Dynadim+ CLO*	**C1** - Class I	**NP** - No precabling **Pxx** - Precabling with XX meters	**48** - Universal 30-48mm **60** - Universal 42-60mm	R7021 Rxxxx*

Example: INL1-25000AAA740-SNOD-C1NP60

* all symmetric optic combinations are valid eg. ABA, but ABC is not
* x is integer number 0-9
* N from option list is only available with SP or FS from accessories

[1] Standard option. This version comes with the toolless opening feature and the toollessly replaceable geartray. All accessory combinations are valid with this option.
[2] NEMA socket option. This version comes with the toolless opening feature and the toollessly replaceable geartray and an extra surge protector to protect your smart devices. Only the fuse can be choosen from the accessory list for this option.
[3] Eco version. This version comes with a precable and can not be opened. Parts are non-user replaceable. All accessory combinations are invalid for this option.

Name	Gen.	Nominal Lumen (lm)	Optics	CCT (K)	Option list	Accessories	Control	IEC Protection Classes	Precabling	Mounting	Color
INS	1	**4000** **6000** **8000** **10000** **12000** **14000** **16000**	**AAA** **BBB** **CCC** **DDD** **EEE** **FFF** **GGG**	**730** - 3000K 70 CRI **740** - 4000K 70 CRI **750** - 5000K 70 CRI	**S** [1] **N** [2] **E** [3]	**NO** - No Accessory **FU** - Fuse **SP** - Extra surge protection **FS** - Fuse + extra surge protection	**N** - No control **D** - DALI external **Yxx** - Dynadim* **NLxx** - No control+ CLO* **DLxx** - DALI+CLO* **YLxx** - Dynadim+ CLO*	**C1** - Class I	**NP** - No precabling **PC** - Precabling with XX meters	**48** - Universal 30-48mm **60** - Universal 42-60mm	R7021 Rxxxx*

Example: INS1-8000EEE750-NSPD-C1PC60

* all symmetric optic combinations are valid eg. ABA, but ABC is not
* x is integer number 0-9
* N from option list is only available with SP or FS from accessories

[1] Standard option. This version comes with the toolless opening feature and the toollessly replaceable geartray. All accessory combinations are valid with this option.
[2] NEMA socket option. This version comes with the toolless opening feature and the toollessly replaceable geartray and an extra surge protector to protect your smart devices. Only the fuse can be choosen from the accessory list for this option.
[3] Eco version. This version comes with a precable and can not be opened. Parts are non-user replaceable. All accessory combinations are invalid for this option.

Name	Gen.	Optics	Power (W)	CCT (K)	Control	Accessories	IEC protection classes	Precabling	Mounting
SMIx	**2**	**CFC** **CEC** **CCC** **FCF** **FEF** **EEE** **ECE** **EFE** **FFF**	**35** **50** **65** **80** **100** **120** **140** **160**	**30** - 3000K **40** - 4000K **50** - 5000K	**N** - No control **D** - DALI **Yxx** - DynaDIM **NLxx** - No control + CLO **DLxx** - DALI + CLO **YLxx** - DynaDIM + CLO	**ST** - 6kV Surge immunity (built-in the driver) **SP** - Enhanced surge voltage protection10kV/5kA **LSP** - NEMA socket with Shorting Cap + Enhanced Surge Voltage Protection 10kV/5kA	**C1** - Class I **C2** - Class II	**PX**- Pre cabling with X meters **PCX**- Pre cabling with X meters and connector	**U48** - Universal coupler 30-48 mm **U60** - Universal coupler 50-60 mm

Example: SMIx/2/FFF/140/40/D/ST/C1/PC3/U60/R7035

Name	Gen.	Optics	Power (W)	CCT (K)	Control	Accessories	IEC Protection Classes	Precabling	Mounting
PIKO	**1**	**C** **E** **F**	**12** **18** **21** **28**	**3** - 3000K **4** - 4000K **5** - 5000K	**N** - No control	**ST** - Standard **F** - Fuse	**C1** - Class1	**Px** - Precabled with x meters **PCx** - Precabled with connector with x meters	**S35** - Coupler 35-40mm **S60** - Coupler 40-60mm

Example: : PIKO/1/C/21/4/N/ST/C1/P1/S60

Name	Gen.	Front Glass	Optics	Power (W)	CCT (K)	Control	Accessories	IEC Protection Classes	Precabling	Mounting
SLBt	**3**	**F**-Flat Glass	B C D E F N P R S T U B2 B5 C5 E2 E5 F5 G2 P5 X5 Y5 Z5	15 20 30 35 40 50 55 70	**27**-2700 **30**-3000 **40**-4000	**N** - No control **D** - DALI **Y** - DynaDim **NL**- No control with CLO **DL**- Dali with CLO **YL** - DynaDim with CLO	**ST** - Standard type **M3** - Minicell 35lux **SP** - Extra Surge protection **F** - Fuse **LS** - 7 pin NEMA socket* ** **LSP** - 7 pin NEMA socket + Surge protection* ** **SR** - Smart ready connector*	**C1** - Class I **C2** - Class II	**N**- No precabling **PXX**- Precabling with XX meters	**S60** - Side mount bracket 42-60mm **P76** - Post top bracket 48-76mm **U35** - Universal coupler 35-42 mm **U50** - Universal coupler 42-55 mm **U60** - Universal coupler 50-60 mm **U76** - Universal coupler 55-76 mm

Example: SLBT/3/F/B/20/40/N/ST/C1/N/S60

Name	Gen.	Front Glass	Optics	Power (W)	CCT (K)	Control	Accessories	IEC Protection Classes	Precabling	Mounting
SMBt	**3**	**F**-Flat Glass	B C D E F P R S T N U B2 E2 B5 C5 E5 F5 P5 Y5	50 65 80 95 105 120 140 160	**30**-3000 **40**-4000	**N -** No control **D -** Dali **Yxx -** Dynadim **NLxx -** No control with CLO **DLxx -** Dali with CLO **YLxx -** DynaDim with CLO	**ST -** Standard type **M3 -** Minicell 35lux **SP -** Extra surge protection **F -** Fuse **LS -** 7 pin NEMA socket **SR -** Smart ready connector	**C1** - Class I **C2** - Class II	**N**- No precabling **PXX**- Precabling with XX meters	**S60 -** Side mount bracket 42-60mm **P76** - Post top bracket 48-76mm **U35** - Universal coupler with insert 35-42 mm **U50** - Universal coupler with insert 42-55 mm **U60** - Universal coupler with insert 50-60 mm **U76** - Universal coupler 55-76 mm

Example: SMBT/3/F/B/75/40/N/ST/C1/N/S60

Name	Gen.	Front Glass	Optics	Power (W)	CCT (K)	Control	Accessories	IEC Protection Classes	Precabling	Mounting
Spinella - Single module										
SP L	**3**	**F**-Flat Glass	B C E F N P R S T U	50 65 85 100 110 125	**30**-3000 **40**-4000 **50**-5000	**N -** No control **D -** DALI external **Yxx -** Dynadim **NLxx -** Constant Light **DLxx -** DALI+CLO **YLxx -** Dynadim+CLO	**ST -** 6kV surge protection **SP -** Enhanced surge protection **LS -** 7pin NEMA socket with SP * **M3 -** Minicell 35lux **F -** Fuse with SP	**C1** - Class I **C2** - Class II	**N**- No precabling **PXX**- Precabling with XX meters	**P76 -** Post top, 55-76mm **S60 -** Side mounted, 55-76mm **P50 -** Post top, 42-50mm **S50 -** Side mounted,42-50mm
Spinella - Multiple module										
SP H	**3**	**F**-Flat Glass	B C E F N T U	130 150 170 190 210 230	**30**-3000 **40**-4000 **50**-5000	**N -** No control **D -** DALI **Yxx -** DynaDIM **NLxx -** No control + CLO **YLxx -** DynaDim + CLO **DLxx -** DALI + CLO	**ST** - Standard type **LS** - 7pin NEMA socket (no SVP) **F** - Fuse	**C1** - Class I **C2** - Class II	**N** - No precabling **PX** - Precabling with x meters	**S60 -** Side mount 48-60mm **P60** - Post top 48-60 mm **P76** - Post top 76 mm

Example: SP L/3/F/P/100/40/Y/ST/C1/P1/S50
SP H/3/F/B/130/40/N/ST/C1/N/P76

Navona

Name	Gen.	Optics	Power (W)	CCT (K)	Control	Accessories	IEC Protection Classes	Precabling	Arm Type	Coupler
NA	**3**	AFC AWC ANC AWD SWC SWD SFC	20 29 30 40 50 60 70	**27**-2700 **30**-3000 **40**-4000	**N** - No control **D** - Dali **Yxx** - Dynadim **NLxx** - No control + CLO **DLxx** - Dali + CLO **YLxx** - Dynadim + CLO	**ST** - Standard type 10kv Surge immunity (built in driver) **LS** - 7 pin NEMA Socket	**C1** - Class I **C2** - Class II	**N**- No precabling **PX**- Precabling with XX meters*	**1** - 1 arm **2** - 2 arms **S** - side	**48** - 42- 48 mm **60** - 54-60mm **70**- 70-76mm

Example: NA/3/AFC/20/30/D/ST/C1/N/1/60

Name	Gen.	Optics	Power (W)	CCT (K)	Control	Accessories	IEC Protection Classes	Precabling	Mount-ing
NOBILA	**1**	**CC** **CE** **CF** **AC** **AE** **AF** **SC** **SE** **SF**	**20** **30** **40** **50** **60** **70** **80** **90**	**3** - 3000 **4** - 4000	**N** - No control **D** - DALI **Yxx** - DynaDIM **NLxx** - No control + CLO **DLxx** - DALI + CLO **YLxx** - DynaDIM + CLO	**ST** - Standard version **LS** - 7-pin NEMA socket	**1** - Class I **2** - Class II	**Px** - Precabled with x meters	**P60** - Ø48-60mm **P76** - Ø60-76mm

Example: NOBILA/1/CC/40/3/N/ST/1/P1/P60

Name	Gen.	Front Glass	Optics	Power (W)	CCT (K)	Control	Accessories	IEC Protection Classes	Precabling	Mounting
AMIx	**3**	**F**-Flat Glass	**S25**- Symmetric 25° **S35**- Symmetric 35° **S55**- Symmetric 55° **A25**- Asymmetric 25° **A35**- Asymmetric 35° **A55**- Asymmetric 55°	40 55 70 80 100 120 140 160	**730**-3000 **740**-4000	**N** - No control **D** - DALI	**C1** - Class I	**N**- No precabling **P**- Precabling **PC**- Precabling with quick connector	**B** - Bezel **SM** - Surface Mount **FL** - Flood-light

Example: AMIx/3/F/S25/100/740/D/C1/N/B

Name	Gen.	Front Glass	Optics	Power (W)	CCT (K)	Control	Accessories	IEC Protection Classes	Precabling	Mounting
AHIx	**2**	**F**-Flat Glass	**AF** - Asymmetric Forward **AN** - Asymmetric Narrow **AW** - Asymmetric Wide **AEF** - Asymmetric Extra Wide Flood **AFN** - Asymmetric Forward Throw Narrow **SWF** - Symmetrical Wide Flood **SNS** - Symmetrical Narrow Spot **SW** - Symmetrical Wide **SF** - Symmetrial Forward	200 250 285 300	**4**-4000 **5**-5000	**N** - No control **D** - DALI **Yxx** - Dynadim **NLxx** - No control + CLO **DLxx** - DALI + CLO **YLxx** - Dynadim + CLO	**ST** - Standard Luminaire, Driverbox mounted on luminaire **RST** - Remote Driver Luminaire, Driverbox separated from luminaire	**1** - Class I **2** - Class II	**N**- No precabling **PX**- Precabling with XX meters	**B1** - Bracket (Long) **B2** - Bracket (Short) **B3** - Bracket (Coupler Ø60mm)

Example: AHIx/2/F/AF/200/4/D/ST/C1/N/B1

Name	Gen.	Front Glass	Optics	Power (W)	CCT (K)	Control	Accessories	IEC Protection Classes	Precabling	Mounting	Special Options
ALIX	**3**	**F**-Flat Glass	**AF** - Asymmetric Forward **AW** - Asymmetric Wide **AN** - Asymmetric Narrow **AEF** - Asymmetric Extra Wide Flood **AFN** - Asymmetric Forward Throw Narrow* **SWF** - Symmetrical Wide Flood **SNS** - Symmetrical Narrow Spot	32 50 70 100 140	**3**-3000 **4**-4000 **5**-5000	**N** - No control **D** - DALI external **Y** - Dynadim **NL** - Constant Light **DL** - DALI +CLO **YL** - Dynadim +CLO	**ST** - 6kV surge protection **Sp** - Enhanced surge protection **LS** - 7 pin NEMA socket with SP	**1** - Class I **2** - Class II	**N**- No preca-bling **PXX**- Precabling with XX meters	**C** - 60mm Coupler **B** - Bracket	**ST** - Standard version **A-** 2 cable gland cable entries

Example: ALIX/3/F/AEF/140/4/D/ST/1/P10/C/R9005/A

Name	Gen.	Front glass	Optics	Power (W)	CCT [K]	Control	Accesso-ries	IEC protection class	Precabling	Mounting
TLBt	**3**	**F**	A B C D E Y	**32** **42** **54** **65** **90**	**40**-4000	**N** -No control **D** - DALI **W** - LineSwitch **Y** - DynaDIM **NL** - No control + CLO **DL** - DALI + CLO **WL** - LineSwitch + CLO **YL** - DynaDIM +CLO	**ST** - 6kV Surge immunity	**C1** - Class 1 **C2** - Class 2	**N**- without precabling **PX**- Precabled with x m	**B1**- Short bracket for ceiling mounting **B2**- Long bracket for wall mounting
TMBt	**3**	**F**	AA AB AC AD AE AQ SA SB SC SD SE	**130** **150**	**40**-4000	**N** -No control **D** - DALI **W** - LineSwitch **Y** - DynaDIM **NL** - No control + CLO **DL** - DALI + CLO **WL** - LineSwitch + CLO **YL** - DynaDIM +CLO	**ST** - 6kV Surge immunity	**C1** - Class 1 **C2** - Class 2	**N**- without precabling **PX**- Precabled with x m	**B1**- Short bracket for ceiling mounting **B2**- Long bracket for wall mounting

Example: TLBt/3/F/A/32/40/N/ST/C1/N/B1
TMBt/3/F/AB/130/40/N/ST/C1/N/B1

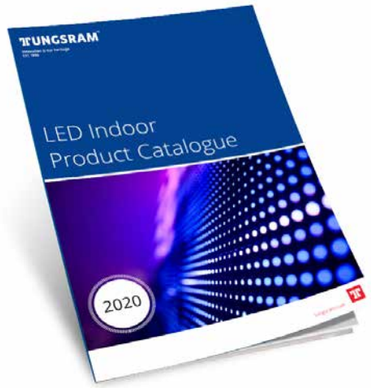
ABOUT TUNGSRAM

At Tungsram, we see ourselves as more than just a lighting company that offers an innovative approach to lighting. We are shaping the future of urban living providing technology-driven, smart and sustainable solutions for large metropolitan areas using light as a platform.

Learn more: **www.tungsram.com**

Discover Tungsram portfolio

From traditional technologies to state-of-the-art LED products, we incorporate energy optimization and system intelligence into our portfolio.



LED INDOOR
CATALOGUE

TRADITIONAL LAMPS
CATALOGUE

AUTOMOTIVE
CATALOGUE

LED AGRITECH
CATALOGUE

TUNGSRAM ARCHIFM
CATALOGUE

INFRATRAINER
CATALOGUE

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