

THORN

Lighting for Pedestrian Crossings

Identification Visibility Safety



IVS Identification Visibility Safety

Serious accidents occur on pedestrian crossings every day and cause outrage because crossings are perceived as places of safety where the driver should be able to see pedestrians. But what if the driver genuinely didn't see the pedestrian until it was too late?

*The EuroTest 'Pedestrian Crossing Assessment Programme' conducted by Europe's motoring and touring organisations' tested 270 crossings between July and September 2010 in 18 major European cities. The study emphasised the need for good lighting at night. Best practices in this field were where lighting systems at zebra crossings showed to be very efficiently focused on the crossing areas, making them clearly visible well in advance to approaching drivers. (<http://www.eurotestmobility.eu/news/archive/2010-2/pedestrian-crossings/>)

It is true that drivers should drive in a manner that allows them to detect and react to all risks in good time. But despite improvement driven by EU directives and national regulations, and overwhelming public support, statistics show that more action is needed to reduce pedestrian crossing fatalities.

One in three pedestrian fatalities occur within the urban environment, peaking during the early evening and at just after midnight.

Eight thousand accidents happen on pedestrian crossing each year, mostly at night and over 40% of crossings score poorly on visibility at night. (based on 2010 figure, Crossings in the EU, sample size 270).

Furthermore, EU traffic Safety Statistics show that nighttime accidents on crossings account for 51% of the total, even though traffic flow is only one third of daytime levels. To make it worse, nighttime accidents are often more severe and over a third are reported to be due to difficulty in observation by the driver.

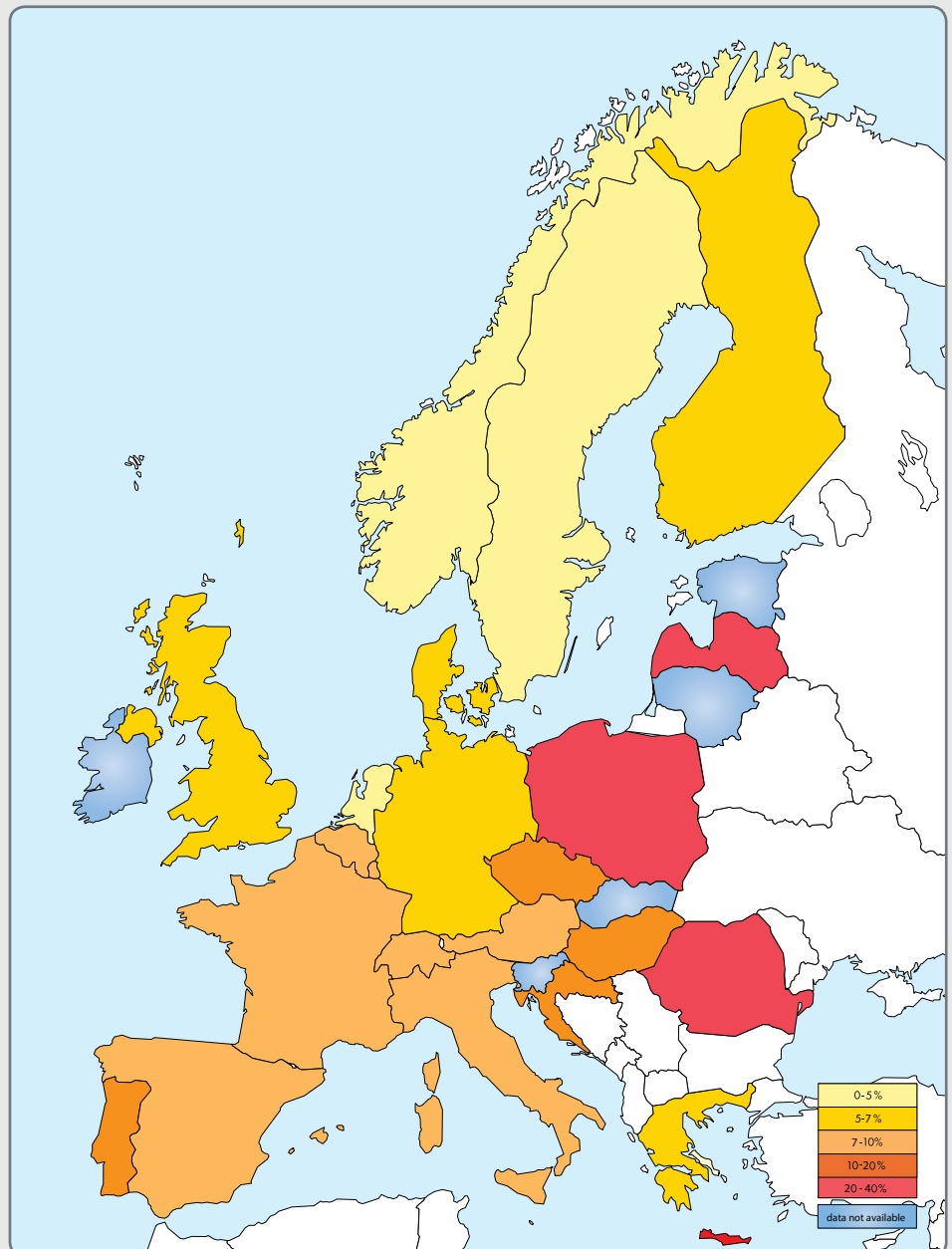
Night-time visibility is a significant focus by the Eurotest assessment programme, attracting a 35% weighting to their safety score and of course lighting and warning beacons play an important role in this.

It's the top priority in improving road safety for municipalities.

It's something authorities can afford to do and serves a valuable purpose.

At Thorn we deliver high performance lighting, optically optimised to give the best possible lighting conditions for pedestrian and driver at road crossing points. You would call it a safe crossing, we call it IVS, Identification Visibility System.

Pedestrians fatalities as a percentage of total road fatalities (Care Database 03/15)



Performance, Efficiency, Comfort

For a better lit environment



R2L2



CivITEQ



Oxanne S



Dyana LED 2



Victor



Urba



Performance: Providing the best visual effectiveness

- Precision optic significantly improves vertical illuminance making pedestrians visible as they cross
- Extreme cut-off for low glare enhances clarity of the lit scene
- Low level flat beam gives good modelling of hazards

Efficiency: Conserving energy and effort, reducing CO₂ emissions and waste, providing lighting that is practical and efficient to install, operate and maintain.

- The luminaire significantly reduces power consumption as the double asymmetric optic enables crossings to be lit more efficiently with minimal obtrusive/waste light
- Easy installation and maintenance from proven products reduce cost of ownership

Comfort: giving people satisfaction and stimulation

- White light with high colour rendering properties creates a reassuring ambience
- Broad choice of luminaire styles unifies the streetscape
- Extra signalling via the flashing LED indicates safe crossing location and enhances safety

IVS Identification Visibility Safety

With the IVS, system safety is enhanced by the specialist optical system and the use of additional signaling

General lighting principles

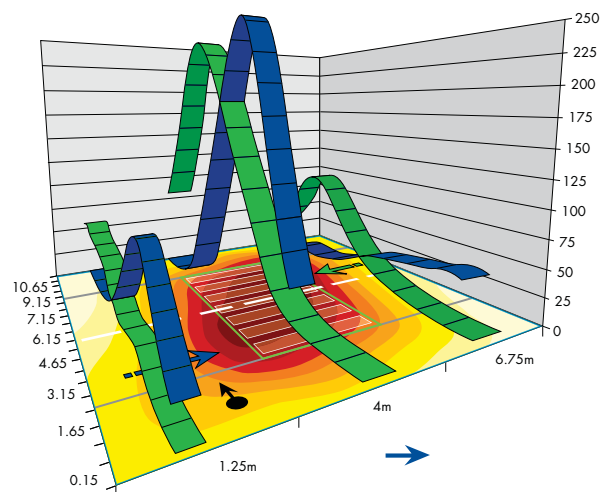
Accepted practice concerning the road safety when approaching a crossing is that a pedestrian is clearly revealed to any driver by silhouette against the road surface, experience shows that the lit road surface allows a person to be seen in negative contrast as a 'shadow'. This is an over-simplification of what really occurs. In practice car headlights provide competing positive contrast, which can at a point of transition results in zero contrast, making it almost impossible for the driver to see the pedestrian. For this reason the relevant standard EN 13201-2:2003, and national guidance documents, recommend additional local lighting to ensure positive contrast. The lighting must alert drivers to the presence of the crossing and make pedestrians as visible as possible on or near the crossing area (zones at either side of the crossing). Where pedestrians wait to cross they should receive adequate light on a vertical plane towards the approaching traffic; the lighting should be significantly higher than the horizontal illuminance produced by road lighting on the carriageway. The lighting should also strictly reduce glare towards the driver. The IVS solution from Thorn is to use luminaires with asymmetric light output, positioned a short distance before the crossing in the direction of approaching traffic, directing the light onto the side of pedestrians facing the driver.

Adoption of IVS

IVS offers 'crossing' options on six existing street lighting ranges. Signaling is added via the rapid flashing double asymmetric beacon. With enhanced vertical illuminance (Fig.1), good glare control and the warning beacon to attract attention, IVS brings pedestrians and drivers to a safer crossing solution. It is essential to blend the crossing to the surrounding zones for both pedestrian and driver. IVS directs light towards the accident prone areas leading up to the crossing point, both for the pedestrian pavement and the vehicle approach zone. IVS adopts a dual zone approach (See Fig. 2) with light directed at the centre of the crossing and area surrounding the safety zone. This improves safety by increasing visual acuity, making it easy for drivers to see pedestrians on the footway and kerb from a greater distance, while pedestrians are able to clearly view the footway surface, safety markings, obstructions and other pedestrians. All this is further enhanced using LED for improved colour rendering. superior color rendering.

For a standard 2-lane carriageway, two IVS luminaires are installed in a staggered arrangement; the optimum is to provide columns at equal distances of not more than 4m from the centre of the crossing. To ensure safety, standard road lanterns to the opposite side of the IVS installation should be beyond the crossing point and some distance from it.

Measured at 1.5m high with IVS 72L70, Eav=180lx, U=0.7



This diagram illustrates vertical illuminance for the IVS system as experienced by an approaching driver (blue signifies the near-side lane, green the far lane). It also shows the different levels for the crossing and the adjacent zones (A and B).

Figure 1 – Vertical illuminance levels at 3 positions

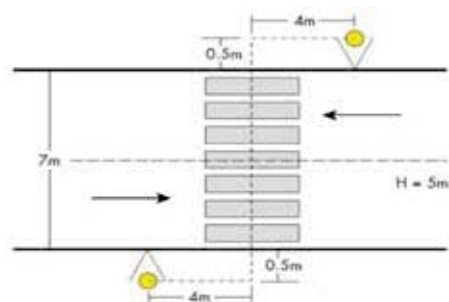


Figure 2 – typical IVS layout and dual zones concept

Type of road/LED version*	36	48	60	72	84	96
One-way 1 lane (Fig.3)	✓	✓	✓	✓	✓	
Two-way 2 lanes (Fig.4)	✓	✓	✓	✓		
Two-way 3 lanes (Fig.5)		✓	✓	✓	✓	
One-way 3 lanes						✓
Two-way 4 lanes						✓

✓ - Best choice, ✓ - Acceptable *700mA

IVS

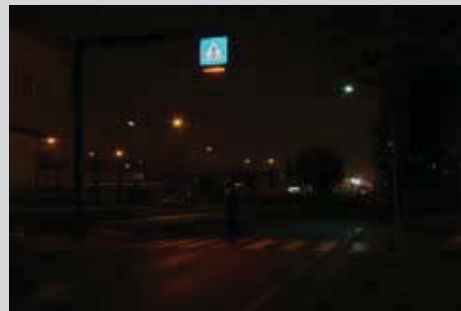
How to light a crossing

Current road lighting provides no indication of the pedestrian crossing from either the pavement or when already crossing the road. It often fails to identify the actual crossing from any distance or highlight the signs used.

Best practice increases safety by highlighting the pedestrian before crossing, whilst on the crossing and clearly identifying the crossing point using a beacon.



Public lighting near the crossing with a sign either side of the road sometimes with its own lighting, yet, the silhouette of the pedestrian can barely be seen.



A dangerous but unfortunately common example. A lit sign above the crossing containing a crossing light placed exactly above and on the crossing. The road appears illuminated but the pedestrian is hardly visible.



How to do it correctly. The pedestrian crossing is lit with IVS. The light distribution clearly lights the pedestrian without glare to the driver. The flashing beacon draws the drivers attention to the crossing point.

Mounting height of the luminaires varies from 4m to 6m, which overcomes the deficiency problems associated with high vehicles in low-level lighting schemes.

IVS is a classic example of the advantage of selecting a light source and optic combination to suit the requirements of a specific application; due to the well controlled beam and restricted elevation of 0° or 5°, area lighting loads and obtrusive (waste) light can be reduced compared to conventional fittings. The reward is a more economical and environmentally sensitive solution. A great balance of performance and efficiency.

Building on the Thorn reputation for good quality, efficiency and reliability, IVS versions of our standard luminaires keeps installation and maintenance impacts to a minimum whilst matching the aesthetic of the road lighting and wider streetscape.

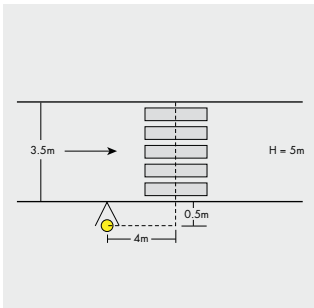


Figure 3. 1 lane - one way

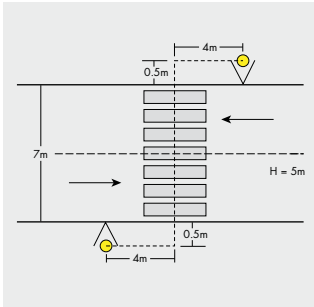


Figure 4. 2 lanes - two ways

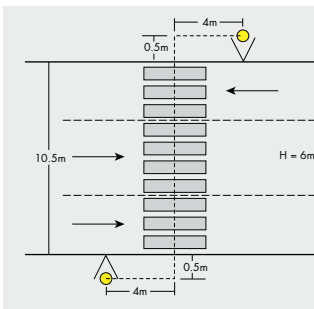
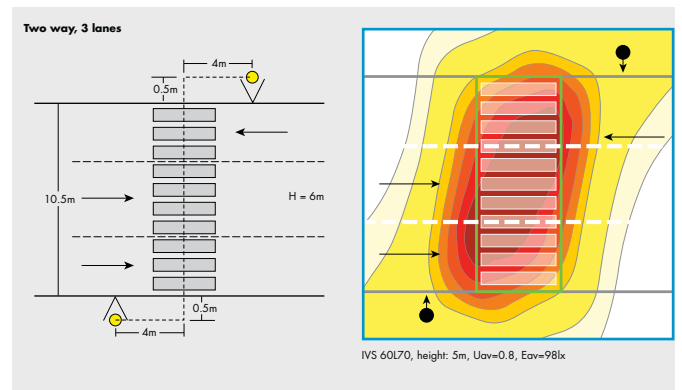
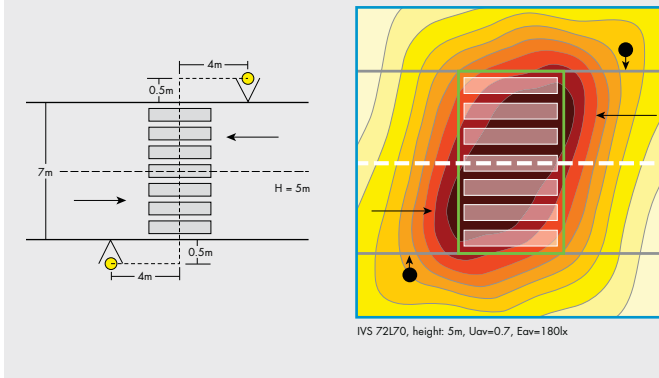
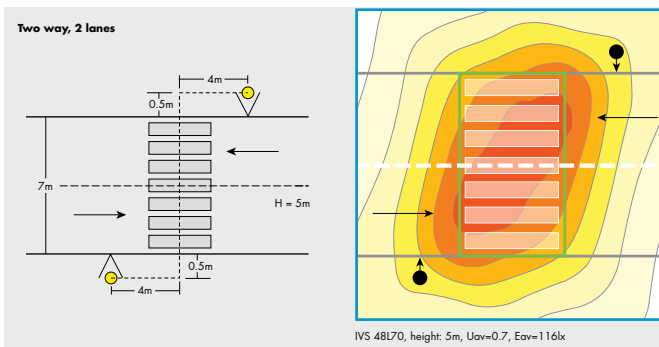
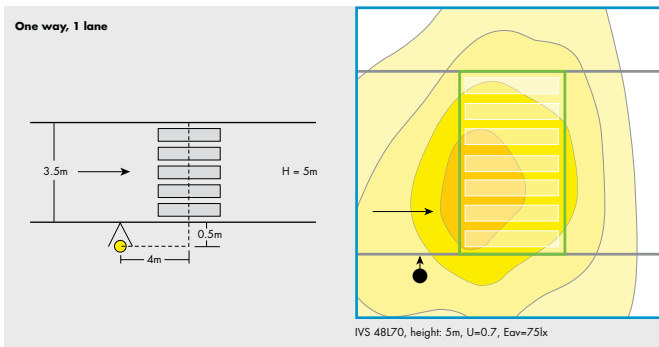


Figure 5. 3 lanes - two ways

IVS

Typical schemes

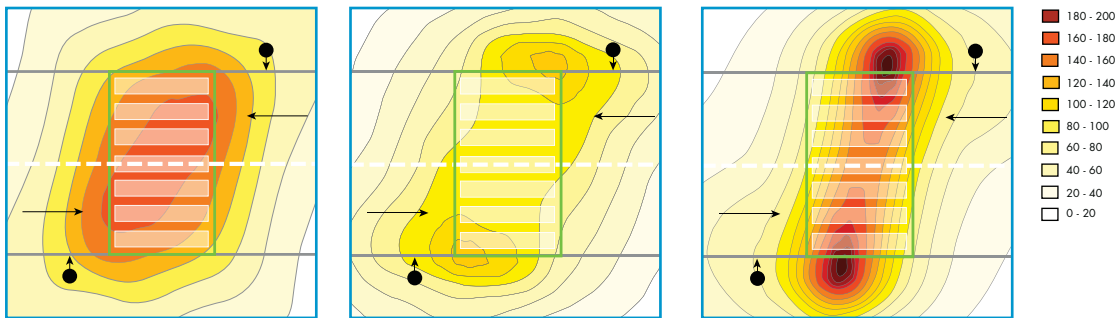
Whatever luminaire design is selected from the IVS portfolio the optical performance for each lamp type is as follows:



■ 180,0-200,0	■ 60,0-80,0
■ 160,0-180,0	■ 40,0-60,0
■ 140,0-160,0	■ 20,0-40,0
■ 120,0-140,0	■ 0,0-20,0
■ 100,0-120,0	
■ 80,0-100,0	

Pedestrian Crossing two-way, two lanes

Using the same colour temperature lamps: 4000°K



	IVS LED 2*48L70 9400lm Height: 5m	IVS 2 HIT 150 W 19 000lm Height: 5m	Traditional Technique 2 HIT 150 W 12 500lm Height: 5m
Uave	0.7	0.7	0.4
Eave	116lx	121lx	160lx
W	220	300	300
	Thanks to its efficient R-PEC® optical system, the new IVS LED ensures an improved uniformity with high illuminance values, all with less than quarter of the energy required by conventional techniques	Thanks to its purpose made, highly efficient, 150W optic, IVS maintains excellent uniformity and illuminance levels.	Given the same parameters a traditional pedestrian crossing luminaire, with optimised settings, achieves too much illuminance and, more critically, poor uniformity, resulting in unsatisfactory visibility of people within the area.

IVS

Product features

Signalling accessory




Using the latest advances in LED technology, the IVS system aims to complement road signal legislation by offering highway authorities an additional safety feature: a rapid flashing indicator accessory to further warn road users to yield sooner when approaching the crossing.

Mounted on the lighting column, separate from the luminaire for better visibility yet beyond the reach of vandals, the knuckle shaped unit consists of two circular amber LEDs aligned horizontally, one on each side. The lights flash at a predetermined rate to achieve optimum driver recognition and operate separately from the lantern, being visible during the day as well as nighttime hours. A further benefit is to attract and encourage pedestrians to cross the road inside the identified zone, where they are more visible.

Together with the selection of lanterns and columns this creates not only the complete pedestrian crossing lighting package from a single, dedicated source of supply, but also an authoritative body of design advice, too.

Lamps

Flashing Node:
 6 X 1W LEDs (3 each side)




Materials/Finish

Body : ABS, finished in light grey (RAL 9006) or powder coated texturized, texturized grey (Akzo 900) .
 diffuser : toughened glass
 Screw fixings : stainless steel

Installation/Mounting

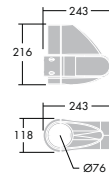
Mounting at 1120mm from the top of a conical Ø60 column or Ø76mm cylindrical column with a Ø22mm go through hole (as per Thorn IVS column)
 Cable gland for Ø8mm to 13mm cable.
 Screw fixings: stainless steel
 Delivered ready to install, complete with factory fitted integral gear prewired with 5m of HO7RNF 2x1 mm² cable all supplied in a single carton.

Standards

Designed and manufactured to comply with EN 60598-2-3
 Class II electrical
 Ta 25° (-20°/+35°)
 IP66: Ingress protection
 IK10: Shock resistance 

Specification

To specify state:
 Warning LED flashing node dedicated to pedestrian crossings. IP66 and made of vandal resistant material to be installed on the section of the column. To be installed together with Thorn pedestrian crossings luminaire and column packages.
 As Thorn IVS flash node.



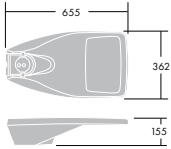
Signalling accessory Ordering guide

Description	Gear	Finish	
		Texturised Grey	Light Grey
IVS FLASH NODE 6W 2 X 3LED	Integral	96256654	96256655

R2L2

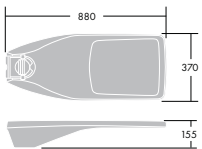


R2L2 Small



Max. weight (kg)
10.6 (with gear) 8.6 (without gear)
Max. Sc: 0.05m²

R2L2 Medium



Max. weight (kg)
14.2 (with gear) 11.1 (without gear)
Max. Sc: 0.06m²

Light source

From 12 LED to 180 LED
Lifetime:
100 000 hours B10L70
>100 000 hours B50L90
@Ta25°C
Luminaire efficacy up to
120Lm/W R-PEC
Up to 40 000lm
Color Temperature 4000K
but also 3000K and 5700K
CRI: 70

Materials/Finish

Housing, canopies, spigot:
die-cast aluminium with powder
coating
Glass: tempered, 4 mm thick
Screws: EcolubricR treated
Powder coating texturized light
grey as standard (close to R9006)
Other RAL or AKZO colors
available on request
Other special treatment on
request

Installation/Mounting

Post-top mounting: Ø60-76mm
Side-entry mounting: Ø48-60mm
or Ø34-42-48-60mm
Operating temperature:
-25°C < Ta < +35°C
Suitable for use up to +50°C
through the use of heat
regulation system
Recommended mounting height:
4m to 14m
Adjustable tilt angle side:
0°/ -5°/ -10°/ -15°
Adjustable tilt angle top:
0°/ +5°/ +10°

Standards

EN 60598 IK08 IP66   CE

Specification

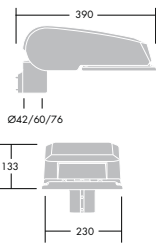
To specify state:
Three sizes with extensive optical,
lumen and light distribution
choice for all road applications
up to ME1.
Efficient (up to 100Lm/W) R-PEC
optic with 11 light distributions
for precise light placement with
minimum waste light. Wide
range of intelligent lighting
control solutions from stand-
alone dimming to fully remote
control via central monitoring
system. Attractive, universal
and integrated spigot offering
flexibility through top and side
entry as well as tilt adjustment
up to 15°. Easy to fit back and
front louvres which can be fitted
retrospectively for extra light
control and comfort. As Thorn
R2L2

Size	Number of LEDs	mA	K	Electrical Class	Description	SAP Code
S	36	700	4000	2	R2L2 S 36L70 IVS 740 CL2	96268486
S	48	700	4000	2	R2L2 S 48L70 IVS 740 CL2	96268515
M	60	700	4000	2	R2L2 M 60L70 IVS 740 CL2	96268314
M	72	700	4000	2	R2L2 M 72L70 IVS 740 CL2	96268343
M	84	700	4000	2	R2L2 M 84L70 IVS 740 CL2	96268367
M	96	700	4000	2	R2L2 M 96L70 IVS 740 CL2	96266752
M	60	700	5700	2	R2L2 M 60L70 IVS 757 CL2	96268315
M	72	700	5700	2	R2L2 M 72L70 IVS 757 CL2	96268344
M	84	700	5700	2	R2L2 M 84L70 IVS 757 CL2	96268368
M	96	700	5700	2	R2L2 M 96L70 IVS 757 CL2	96268390

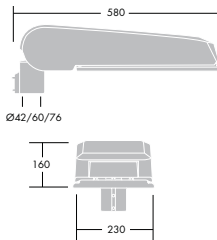
IVS

Product features

CiviTEQ



CiviTEQ S - Scx: 0,077m²



CiviTEQ L - Scx: 0,115m²

Light source

100.000hrs Drivers and LEDs (L90) at Ta25°C
Luminaire efficacy up to 127Llm/W
Up to 17 000lm (156W)
Color temperature: 4000K but also 3000K and 5700K
CRI: 70

Materials/Finish

Performance version: Canopy: die-cast aluminium, powder coated grey RAL 9006 (other RAL colours on request) with rear clip in stainless steel.
Basic version with canopy in glass reinforced polycarbonate, RAL 9006 with antigelvanic stainless steel screws
Body: die-cast aluminium unpainted
Spigot: plain die-cast aluminium
Enclosure: toughened glass
Screws: stainless steel

Installation/Mounting

CL1: Suitable for mounting on top Ø76mm or side Ø60mm or Ø42mm (Ø60mm delivery with reducer MA34/42mm fitted)

CL2: Suitable for mounting on top Ø76mm or side Ø60mm (Ø34/42mm with accessory 96261772)

Variable tilting setting: 0° to +10° on post top mounting and -20° to 0° on lateral mounting, in 5° steps.

Accessory to set at horizontal 0° the luminaire when retrofitted in side entry onto 45° tilt arm

Cable gland for Ø8 to 12mm cable. Delivered complete and ready to install, all supplied in a single carton

Standards



Specification

To specify state:
Unobtrusive, cost effective road lighting solution featuring R-PEC® and Optibloc® with 12 precise lighting distributions, fully versatile installation possibilities, low maintenance requirements and no need to replace LED driver. CMS with Radio Frequency and Powerline system, is also compatible with other controls systems. Choice of options and accessories: 10KV, automatic disconnection, BPS, LRT, photocell and external louvres.
As Thorn CiviTEQ.

Size	Number of LEDs	mA	K	Description	SAP Code
M	36	700	4000	CQ 36L70-740 IVS CL2 M60	96643155
M	36	700	5700	CQ 36L70-757 IVS CL2 M60	96643227
L	48	700	4000	CQ 48L70-740 IVS CL2 M60	96643158
L	48	700	5700	CQ 48L70-757 IVS CL2 M60	96643228
L	60	700	4000	CQ 60L70-740 IVS CL2 M60	96643161
L	60	700	5700	CQ 60L70-757 IVS CL2 M60	96643229
L	72	700	4000	CQ 72L70-740 IVS CL2 M60	96643164
L	72	700	5700	CQ 72L70-757 IVS CL2 M60	96643230

Oxane S



Light source

Lifetime hours: 100 000 hours
 B10L90 @Ta25°C
 >100 000 hours B50L90
 @Ta25°C
 Luminaire efficacy up to
 111lm/W
 Lumen output up to 8000lm

Materials/Finish

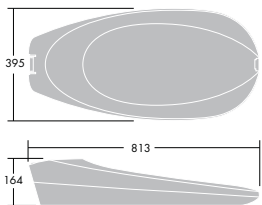
Body and Spigot: die-cast
 aluminium, powder coated
 texturized light grey (close to
 RAL9006)
 Enclosures: toughened glass,
 self-cleaning treatment on request
 Screws and closing set: stainless
 steel

Installation/Mounting

Rotating spigot secured by 2
 screws with safety bolts
 Post-top mounting: Ø60/76mm x
 80mm long spigot. Tilted to 5°
 Lateral mounting:
 CL1 - Ø34/42/48/60mm x
 120mm. Tilted to 0°
 CL2 - Ø48/60mm x 120mm long
 (Ø34/42 reducer as accessory)
 Cable gland for Ø8 to 13mm
 cable.
 Delivered ready to install in 1
 box.

Specification

Easy to install and fully
 maintainable LED luminaire
 designed to offer effective and
 reliable lighting performances
 with combined thermal and
 optical system. Suitable for main
 road lighting applications up to
 ME3.
 As Thorn Oxane S.



Scx: 0.065m²
 Max. 17Kg

Standards



Number of LEDs	mA	K	Electrical Class	Description	SAP Code
36	700	4000	2	OXANE S 36L70 IVS 757 CL2	96268486
36	700	4000	2	OXANE S 36L70 IVS EFL 740 CL2	96272233
36	700	5700	2	OXANE S 36L70 IVS EFL 757 CL2	96272143

IVS

Product features

Dyana LED 2



Light source

Total luminous flux: 10884 lm
 Luminaire efficacy: 102 lm/W
 Lamp efficacy: 93 lm/W
 Colour Rendering Index min.: 70
 Correlated colour temperature: 4000 K
 Rated median useful life: 100 000h L90 at 25°C

Materials/Finish

Body, spigot and canopy: die-cast aluminium, textured dark grey finish.
 Flat glass cover: 5mm thick toughened glass.
 Gaskets: Ethylene Propylene Diamine rubber (EPDM)

Installation/Mounting

Post-top mounting Ø60mm, tilt = 5°, 10°. End cap secured by 2 screws. Supplied complete and ready to install, in a single box. Weight: 12kg max.

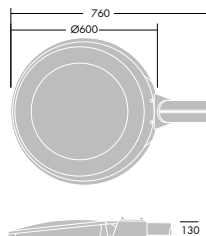
Standards



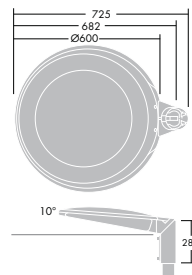
Specification

To specify state: IP66 and IK09 aluminium decorative street lighting lantern with Ø60mm post-top mounting, 10° tilt and IVS dedicated optic. With options for dimming and lighting management system. As Thorn Dyana LED.

Number of LEDs	mA	K	Electrical Class	Description	SAP Code
72	700	4000	2	DYANA2 LED 72L70 IVS 740 CL2 MTP	96264567

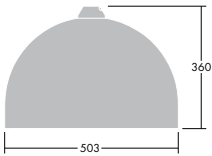


LED MLE Size 2 Sxx 0,049m²



LED MTP Size 2 Sxx 0,059m²

Victor



Light source

Total luminous flux: 1423 lm
 Luminaire efficacy: 89 lm/W
 Lamp efficacy: 89 lm/W
 Rated median useful life:
 100 000h L70 at 25°C

Materials/Finish

Body: aluminum powder coated
 NCS0500 (White)
 Spigot: corrosion protected steel
 Enclosure: 4mm clear toughened
 glass
 Reflector: high purity anodized
 aluminium
 Screws and clips: stainless steel

Installation/Mounting

Mounting spigot of female 3/4"
 pipe thread type (for Ø27G male
 threaded tube).
 Large choice of fixings for post
 top, side entry or catenary
 (see Columns section of the
 catalogue).
 Cable gland for Ø6mm to
 Ø13mm cable.
 Access from below to gear and
 optic system after quick release
 of the hinged glass enclosure via
 'twist and lock' design.
 Automatic disconnection of the
 electrical mains when opening.
 Mounting plate with optics and
 ballast has hinge suspension and
 stays attached when released.
 Tool free connection to 2x2.5mm²
 terminal. Pre-wiring on request.

Standards

EN 60598 IP66 IK08 T_a-25
 +35

Specification

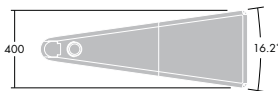
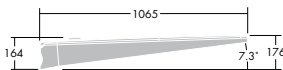
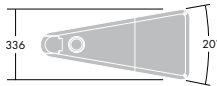
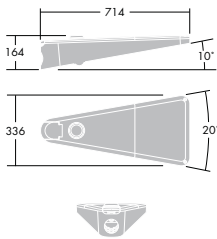
To specify state:
 Full IP66 aluminium road and
 streetlighting luminaire. For 24W
 to 150W lamps and 1800lm
 to 3000lm LED. Female spigot
 mounting onto Ø27G tube.
 Automatic disconnection at
 opening and tool free access to
 and removal of lamp and gear
 tray. With options for electronic
 gears, dimming and lighting
 management system.
 As Thorn Victor.

Number of LEDs	mA	K	Description	SAP Code
36	700	4000	VIC2 36L70 IVS 740 CL2 HFX 8M	96627563
48	350	4000	VIC2 48L35 IVS 740 CL2 HFX	96627564
36	70	5700	VIC2 36L70 IVS 757 CL2 HFX 8M	96627604
48	350	5700	VIC2 48L35 IVS 757 CL2 HFX	96627605

IVS

Product features

Urba



Light source

Luminaire Lumen output up to 9731 Lm
 Luminaire Efficacy up to 108 lm/W
 Lifetime 100,000 Hours @L90 Ta 25°C
 Colour temperature: 4000, 5700K
 CRI : 70

Materials/Finish

Die cast aluminium dark grey, texturized finish with dichroic flat glass (5mm)
 Deflector: ABS anti UV white (RAL9016)
 Gasket in EPDM
 Frame : Aluminium with powder metalized aluminium and varnish finish

Installation/Mounting

Urba is delivered ready-to-install, in 1 single box
 Available in 2 sizes, Urba offers flexibility of installation with:
 - 60mm post top mounting (MTP)
 - 0° tilt - secured by 2x M8x25 screws
 Quick and easy to install, Urba allows low installation costs
 Pre-wired versions as standard for quicker and easier installation

Specification

To specify state:
 Highly designed urban street IP66 and IK10 lantern in two sizes, with IVS dedicated optic (up to 108 Lm). Post top mounting, Ø60mm. As Thorn Urba.

Standards



Size	Number of LEDs	mA	K	Description	SAP Code
URBA S	36	700	4000	URBA S 36L70 IVS GY CL2 8M MTP60 740	96269606
URBA L	48	350	4000	URBA L 48L70 IVS GY CL2 10M MTP60 740	96269928
URBA S	36	700	5700	URBA S 36L70 IVS GY CL2 8M MTP60 757	96272234
URBA L	48	350	5700	URBA L 48L70 IVS GY CL2 10M MTP60 757	96272235

Areaflood



Light source

Luminaire lumen output up to 19500lm
 Luminaire efficacy up to 121 lm/W
 Lifetime 100 000 hours
 L90 @Ta25°C
 Colour temperature: 4000K and 5700K
 CRI: 70

Materials and Finish

Body: die-cast aluminium (AS12U, EN AC-47100) powder coated texturised dark grey. Other RAL colours or special treatment available on request
 Gasket: silicon (IP66 seal)
 Hinges: polyamid glass fibre 20%
 Glass: toughened (5mm thick)

Installation and Mounting

Reversible mounting stirrup and aiming for horizontal position is simplified via 2 indicators depending on the stirrup mounting position. Cable gland for Ø8-12mm. Drop front glass access with 2 screws (size 1) or 4 screws (size 2). Direct access to LED drivers (size 1) or access via 1 screw on LED support plate (size 2). Delivered with stirrup. Choice of spigot adaptor for post top mounting the stirrup onto a column (Ø60 or 76mm). Fixes to column with 2xM10 bolts and nuts (supplied). Stirrup fixed by 2 bolts and washers (supplied). Choice of decorative bracket arm for mounting stirrup onto column (size 1 only, Ø60 or 76mm). Fixes via 4xM8 bolts (not supplied).

Standards



Specification

To specify state:
 High efficiency LED floodlight providing asymmetrical distributions with 60° peak intensity. Excellent control of obtrusive light thanks to inclined glass inside integrated visor (0 cd at 90°). Full IP66 / IK08 and easy maintenance of LED driver thanks to hinged front glass. As Thorn Areaflood LED.

Size	Number of LEDs	mA	K	Electrical Class	Description	SAP Code
1	36	700	4000	2	AREA1 36L70 IVS 740 CL2	96272219
1	36	700	5700	2	AREA1 36L70 IVS 757 CL2	96272223
2	84	700	4000	2	AREA2 84L70 IVS 740 CL2	96272222
2	84	700	5700	2	AREA2 84L70 IVS 757 CL2	96272226

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www.thornlighting.com/warranty

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