



## Economic, accurately controlled LED lighting for minor and major roads

- Excellent heat dissipation and a long life time for low maintenance and a minimum total cost of ownership
- High optical performance with adjustable tilting  $-20^{\circ}$  to  $+10^{\circ}$  for accurate lighting control
- Efficient, optimised energy consumption with a return on investment typically less than five years
- Timeless simple style offers an excellent refurbishment solution and reduces daytime visual impact
- Stand alone dimming for optimised energy usage

### Applications

- Minor and major roads

### Lamps

- LED light source
- Life time up to 80,000 hrs @L80 Ta25°C
- Optic efficacy up to 106 lm/W
- Luminaire efficacy up to 83 Lm/w
- Lumen Output: from 1100lm to 6000lm
- Colour temperature: 4000k (others on request)
- CRI: 70



Side mounted flat glass version



Post top flat glass version



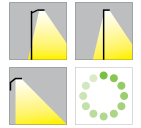
### Standards

EN 60598 IK08 IK10 T<sub>a</sub>-25 +35 IP66



IK08 - glass IK10 - polycarbonate  
IP66 optic and gear compartment

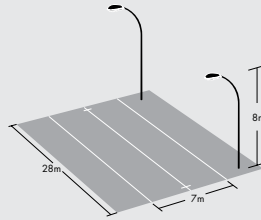
### Lamps



## Energy efficiency

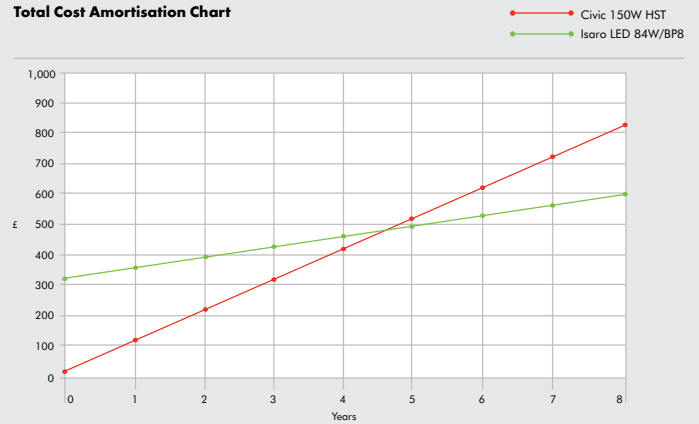
### Example: road refurbishment ME3a/S1 lighting class (EN13201)

Isaro LED can replace a 150W HST lantern (e.g. Thorn Civic) with the latest 84W LED 84W dimming lantern, providing equivalent lighting performance as an existing installation, but with 37% energy savings and no upward light (ULOR) due to the adjustable tilting.



	L <sub>ave</sub> (cd.m <sup>-1</sup> )	E <sub>ave</sub> (Lx)	U <sub>0</sub>	T <sub>i</sub>	SR	W (System)	W.m <sup>-1</sup>	Tilt
Target	1.0	15.0	0.40	15	0.5	-	-	-
Civic 150W HST	1.1	15.9	0.63	6.61	0.6	168	6.0	+20°
Isaro LED 84W/BP8	1.1	17.0	0.5	7.5	0.5	84/53 (BP8)	3.0/1.9 (BP8)	0°

## Total Cost Amortisation Chart



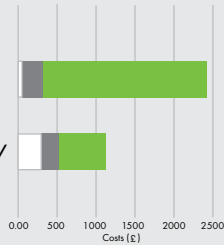
Old technology discharge light sources currently dominate outdoor lighting systems, resulting in high maintenance, high energy consumption and in many cases poor quality light. When considering modernisation of street lighting, upgrading the complete luminaire to the latest technology may prove the best option. This sample project demonstrates the opportunity to make significant lighting efficacy improvements by retrofitting the existing lighting system (150W HST) with a new Isaro LED luminaire.

The high lighting performance of this modern lantern allows a dramatic reduction in the power consumption and carbon footprint of the installation of up to 76%, while keeping the same lighting requirements with improved efficiency and lighting comfort. When evaluating the investment costs, the large savings generated by reduction in energy use and by the operating maintenance the result is a very short return on investment meaning that the outdated systems can be easily refurbished with a modern cost effective solution.

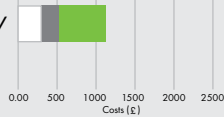
### Light point total life cost for this example

Initial Costs (£)  
Maintenance Costs (£)  
Energy Costs (£)

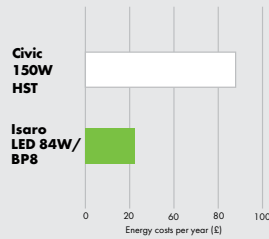
#### Civic 150W HST



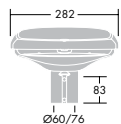
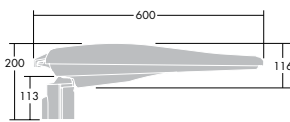
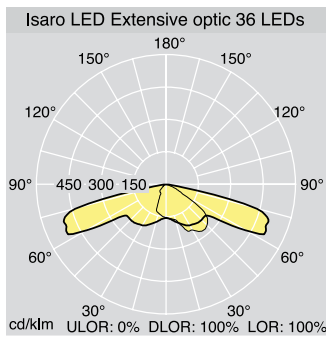
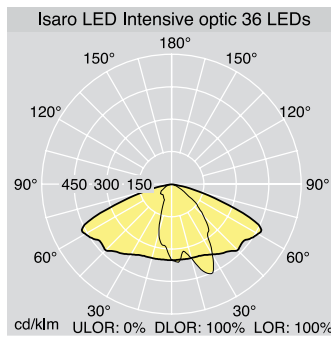
#### Isaro LED 84W/BP8



### Light point energy costs per year



## Overview



Scx: 0.069m<sup>2</sup>

## Materials/Finish

Body: die-cast aluminium powder coated grey, RAL 9006 (other RAL colours on request)  
Bracket: plain die-cast aluminium or powder coated grey, RAL 9006 (other RAL colours on request)  
Enclosures: UV stabilised polycarbonate or toughened glass  
Screws: stainless steel

## Installation/Mounting

Suitable for mounting on top: Ø76mm and side: Ø60mm/Ø42mm.  
Variable tilting setting: 0° to +10° on post top mounting and -20° to 0° on lateral mounting, in 5° steps.  
Cable gland for Ø8 to 12mm cable. Delivered ready to install, complete with factory fitted integral gear tray, all supplied in a single carton

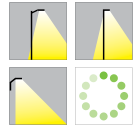
## Specification

To specify state:  
A cost effective road LED luminaire combining performance and energy savings for minor and major roads. Choice of photometries with adjustable tilting from -20° to +10° for accurate lighting control. Designed for long service life with excellent heat dissipation by optimising the path between the heat source and the exterior. Integrated dimming system and photocell options. As Thorn Isaro LED.

## Ordering Guide

Description	Weight (Kg)	SAP Code
ISARO LED 26W EFL CL1 MA42	5.4	96262996
ISARO LED 26W EFL CL1 MA60	5.5	96263026
ISARO LED 26W EFL CL1 MA76	5.5	96262848
ISARO LED 38W EFL CL1 MA42	5.3	96262977
ISARO LED 38W EFL CL1 MA60	5.5	96262456
ISARO LED 38W EFL CL1 MA76	5.5	96262457
ISARO LED 39W EFL CL1 MA42	5.4	96263000
ISARO LED 39W EFL CL1 MA60	5.5	96262859
ISARO LED 39W EFL CL1 MA76	5.5	96262860
ISARO LED 39W EFL CL1 PN MA42	5.5	96263033
ISARO LED 39W EFL CL1 PN MA60	5.6	96263034
ISARO LED 39W EFL CL1 PN MA76	5.7	96263035
ISARO LED 56W EFL CL1 MA42	5.6	96262983
ISARO LED 56W EFL CL1 MA60	5.5	96262476
ISARO LED 56W EFL CL1 MA76	5.5	96262477
ISARO LED 56W EFL CL1 PN MA42	5.5	96263039
ISARO LED 56W EFL CL1 PN MA60	5.6	96263040
ISARO LED 56W EFL CL1 PN MA76	5.7	96263041
ISARO LED 58W EFL CL1 MA42	5.4	96262986
ISARO LED 58W EFL CL1 MA60	5.5	96262486
ISARO LED 58W EFL CL1 MA76	5.6	96262487
ISARO LED 58W EFL CL1 PN MA42	5.4	96263036
ISARO LED 58W EFL CL1 PN MA60	5.5	96263037
ISARO LED 58W EFL CL1 PN MA76	5.7	96263038
ISARO LED 84W EFL CL1 MA42	5.6	96262991
ISARO LED 84W EFL CL1 MA60	5.5	96262500
ISARO LED 84W EFL CL1 MA76	5.6	96262501
ISARO LED 84W EFL CL1 PN MA42	5.6	96263042
ISARO LED 84W EFL CL1 PN MA60	5.7	96263043
ISARO LED 84W EFL CL1 PN MA76	5.7	96263044
<b>Isaro LED, Intensive light distribution, flat glass, Stepdim</b>		
ISARO LED 14W/BP8 SW EFL CL1 MA42	5.3	96262971
ISARO LED 14W/BP8 SW EFL CL1 MA60	5.4	96262428
ISARO LED 14W/BP8 SW EFL CL1 MA76	5.5	96262429
ISARO LED 20W/BP8 SW EFL CL1 MA42	5.3	96262973
ISARO LED 20W/BP8 SW EFL CL1 MA60	5.4	96262440
ISARO LED 20W/BP8 SW EFL CL1 MA76	5.5	96262441
ISARO LED 26W/BP8 EFL CL1 MA42	5.4	96262998
ISARO LED 26W/BP8 EFL CL1 MA60	5.5	96262853
ISARO LED 26W/BP8 EFL CL1 MA76	5.6	96262854
ISARO LED 28W/BP8 SW EFL CL1 MA42	5.3	96262976
ISARO LED 28W/BP8 SW EFL CL1 MA60	5.4	96262451
ISARO LED 28W/BP8 SW EFL CL1 MA76	5.5	96262452
ISARO LED 28W/BP8 SW EFL CL1 PN MA42	5.5	96263030
ISARO LED 28W/BP8 SW EFL CL1 PN MA60	5.6	96263031
ISARO LED 28W/BP8 SW EFL CL1 PN MA76	5.6	96263032
ISARO LED 38W/BP8 EFL CL1 MA42	5.3	96262979
ISARO LED 38W/BP8 EFL CL1 MA60	5.5	96262462
ISARO LED 38W/BP8 EFL CL1 MA76	5.6	96262463
ISARO LED 39W/BP8 EFL CL1 MA42	5.4	96263003
ISARO LED 39W/BP8 EFL CL1 MA60	5.5	96262867
ISARO LED 39W/BP8 EFL CL1 MA76	5.5	96262868
ISARO LED 56W/BP8 EFL CL1 MA42	5.4	96262985
ISARO LED 56W/BP8 EFL CL1 MA60	5.5	96262484
ISARO LED 56W/BP8 EFL CL1 MA76	5.5	96262485
ISARO LED 56W/BP8 EFL CL1 PN MA42	5.5	96263176
ISARO LED 56W/BP8 EFL CL1 PN MA60	5.6	96263177
ISARO LED 56W/BP8 EFL CL1 PN MA76	5.7	96263175

Description	Weight (Kg)	SAP Code
ISARO LED 58W/BP8 EFL CL1 MA42	5.3	96262989
ISARO LED 58W/BP8 EFL CL1 MA60	5.5	96262494
ISARO LED 58W/BP8 EFL CL1 MA76	5.6	96262495
ISARO LED 84W/BP8 EFL CL1 MA42	5.4	96262994
ISARO LED 84W/BP8 EFL CL1 MA60	5.5	96262510
ISARO LED 84W/BP8 EFL CL1 MA76	5.6	96262511
ISARO LED 84W/BP8 EFL CL1 PN MA42	5.6	96263178
ISARO LED 84W/BP8 EFL CL1 PN MA60	5.7	96263179
ISARO LED 84W/BP8 EFL CL1 PN MA76	5.7	96263180
<b>Isaro LED, Extensive light distribution, Shallow PC</b>		
ISARO LED 26W PC CL1 MA42	5.2	96262997
ISARO LED 26W PC CL1 MA60	5.3	96262849
ISARO LED 26W PC CL1 MA76	5.3	96262850
ISARO LED 38W PC CL1 MA42	5.2	96262978
ISARO LED 38W PC CL1 MA60	5.3	96262458
ISARO LED 38W PC CL1 MA76	5.3	96262459
ISARO LED 39W PC CL1 MA42	5.2	96263001
ISARO LED 39W PC CL1 MA60	5.3	96262861
ISARO LED 39W PC CL1 MA76	5.3	96262862
ISARO LED 39W PC CL1 PN MA42	5.3	96263002
ISARO LED 39W PC CL1 PN MA60	5.4	96262863
ISARO LED 39W PC CL1 PN MA76	5.5	96262864
ISARO LED 56W PC CL1 MA42	5.2	96262981
ISARO LED 56W PC CL1 MA60	5.3	96262472
ISARO LED 56W PC CL1 MA76	5.3	96262473
ISARO LED 56W PC CL1 PN MA42	5.3	96262982
ISARO LED 56W PC CL1 PN MA60	5.4	96262474
ISARO LED 56W PC CL1 PN MA76	5.5	96262475
ISARO LED 58W PC CL1 MA42	5.2	96262987
ISARO LED 58W PC CL1 MA60	5.3	96262488
ISARO LED 58W PC CL1 MA76	5.4	96262489
ISARO LED 58W PC CL1 PN MA42	5.4	96262988
ISARO LED 58W PC CL1 PN MA60	5.5	96262490
ISARO LED 58W PC CL1 PN MA76	5.5	96262491
ISARO LED 84W PC CL1 MA42	5.2	96262992
ISARO LED 84W PC CL1 MA60	5.3	96262502
ISARO LED 84W PC CL1 MA76	5.4	96262503
ISARO LED 84W PC CL1 PN MA42	5.4	96262993
ISARO LED 84W PC CL1 PN MA60	5.5	96262504
ISARO LED 84W PC CL1 PN MA76	5.5	96262505
<b>Isaro LED, Extensive light distribution, Shallow PC, Stepdim</b>		
ISARO LED 14W/BP8 SW PC CL1 MA42	5.1	96262970
ISARO LED 14W/BP8 SW PC CL1 MA60	5.2	96262424
ISARO LED 14W/BP8 SW PC CL1 MA76	5.3	96262425
ISARO LED 20W/BP8 SW PC CL1 MA42	5.1	96262972
ISARO LED 20W/BP8 SW PC CL1 MA60	5.2	96262436
ISARO LED 20W/BP8 SW PC CL1 MA76	5.3	96262437
ISARO LED 26W/BP8 PC CL1 MA42	5.2	96262999
ISARO LED 26W/BP8 PC CL1 MA60	5.3	96262855
ISARO LED 26W/BP8 PC CL1 MA76	5.3	96262856
ISARO LED 28W/BP8 SW PC CL1 MA42	5.1	96262974
ISARO LED 28W/BP8 SW PC CL1 MA60	5.2	96262446
ISARO LED 28W/BP8 SW PC CL1 MA76	5.3	96262447
ISARO LED 28W/BP8 SW PC CL1 PN MA42	5.1	96262975
ISARO LED 28W/BP8 SW PC CL1 PN MA60	5.4	96262449
ISARO LED 28W/BP8 SW PC CL1 PN MA76	5.4	96262450
ISARO LED 38W/BP8 PC CL1 MA42	5.2	96262980
ISARO LED 38W/BP8 PC CL1 MA60	5.3	96262464

**Standards**EN 60598 IK08 IK10 T<sub>a</sub>-25  
+35 IP66IK08 - glass IK10 - polycarbonate  
IP66 optic and gear compartment**Lamps**

Description	Weight (Kg)	SAP Code
ISARO LED 38W/BP8 PC CL1 MA76	5.3	96262465
ISARO LED 39W/BP8 PC CL1 MA42	5.2	96263004
ISARO LED 39W/BP8 PC CL1 MA60	5.3	96262869
ISARO LED 39W/BP8 PC CL1 MA76	5.3	96262870
ISARO LED 56W/BP8 PC CL1 MA42	5.2	96262984
ISARO LED 56W/BP8 PC CL1 MA60	5.3	96262482
ISARO LED 56W/BP8 PC CL1 MA76	5.3	96262483
ISARO LED 56W/BP8 PC CL1 PN MA42	5.3	96263181
ISARO LED 56W/BP8 PC CL1 PN MA60	5.4	96263182
ISARO LED 56W/BP8 PC CL1 PN MA76	5.5	96263183
ISARO LED 58W/BP8 PC CL1 MA42	5.2	96262990
ISARO LED 58W/BP8 PC CL1 MA60	5.3	96262496
ISARO LED 58W/BP8 PC CL1 MA76	5.4	96262497
ISARO LED 84W/BP8 PC CL1 MA42	5.2	96262995
ISARO LED 84W/BP8 PC CL1 MA60	5.3	96262512
ISARO LED 84W/BP8 PC CL1 MA76	5.4	96262513
ISARO LED 84W/BP8 PC CL1 PN MA42	5.4	96263184
ISARO LED 84W/BP8 PC CL1 PN MA60	5.5	96263185
ISARO LED 84W/BP8 PC CL1 PN MA76	5.5	96263186
<b>Accessories</b>		
ISARO MA34-42	0.1	96261772
ISARO MA42	0.3	59005096

BP8 - Bi Power during 8hrs at 50% of the flux

BPL - Bi Power Line

SW - Switch to activate/deactivate the dimming

EFL - Flat glass enclosure with intensive light distribution

PC - Shallow PC enclosure with extensive light distribution

CL1 - Class I electrical

MA - Mounting adaptor

RAL9006 - Body and spigot painted RAL9006