



# A new age in outdoor city lighting

Philips CosmoPolis™ Outdoor Lighting System



**PHILIPS**

sense and simplicity



CosmoWhite™ Lamp:  
60W & 140W



Lamp Holder



Advance CosmoWhite™  
Electronic Ballast

CosmoPolis™: A compact system of a lamp, lamp holder, and ballast, specially designed for outdoor applications

# The CosmoPolis™



# outdoor system



## Building on the foundations

The invention of the low-pressure sodium lamp and linear fluorescent lamp in the 1930s created a foundation for today's outdoor lighting. Then, in the 1960s, the light sources of choice became high pressure sodium and mercury vapor.

With CosmoPolis™, Philips presents to you another major step forward in urban outdoor lighting, developed specifically to meet the challenges you face in the 21st century. The CosmoPolis system simplifies outdoor lighting with the combination of a miniature lamp and an optimized electronic ballast system.

## The Six Performance Features of the CosmoPolis System are Impressive:

1. Quality of Light
2. System Efficiency
3. Optical Efficiency
4. Dependable Service
5. Compact System
6. Sustainability

With CosmoPolis, the benefits you experience from using Philips advanced outdoor HID lamps are more impressive than ever.

### CosmoPolis HID Outdoor Lighting System:



Cost Savings



Reliability



Quality of Light



Ecological Care

# The six features of CosmoPolis™/CosmoWhite™

The outdoor lighting trends are towards:

- Energy efficiency and long, dependable service, not only to reduce your lighting ownership costs but also to address environmental concerns.
- Improved visibility and enhanced ambience to attract people back into your city centers at night.
- Miniaturization enables unobtrusive lighting and exciting new luminaire designs.

## CosmoWhite is the Obvious Choice

### 1. Quality of Light

The CosmoPolis™ lighting system meets your current outdoor lighting needs.

CosmoWhite™, with its warm white light, improves the appearance of buildings, parks and the people who visit them.

#### Improved off-axis (peripheral) visibility.

White light improves the visibility of objects and people at the sides of your vision<sup>1</sup>. For example, to a motorist this means a better chance of spotting and reacting to potential hazards on the side of the road, footpaths, bicycle lanes, and at park entrances.

White light is perceived brighter than yellow light at the same measured luminance at low lighting levels<sup>2</sup>. This is due to two factors: the eye's increased sensitivity to white light at low light levels and improved color contrast from better color rendering. So simply put, you can see better.

#### White light is preferred at night over yellow light.

White light gives you better visibility to see objects and people clearly, and also bright, colorful surroundings clearly. It also enables better orientation and quicker identification of people and surroundings.<sup>3</sup>

### 2. System Efficiency

CosmoPolis may cut the cost of your total lighting ownership in three ways: increased luminous efficacy, reduced ballast losses, and improved optical performance.

#### Increased luminous efficacy.

Improvements to lamp arc tube design and vapor salts have

increased luminous efficacy, meaning that you can use CosmoWhite 60 and 140W to replace high pressure sodium (HPS), mercury vapor (MV) or quartz metal halide (QMH) with useful energy savings and without loss of light levels.

CosmoPolis is not a retrofit for existing lamps, but offers you impressive benefits for new or renewed installations. Consider:

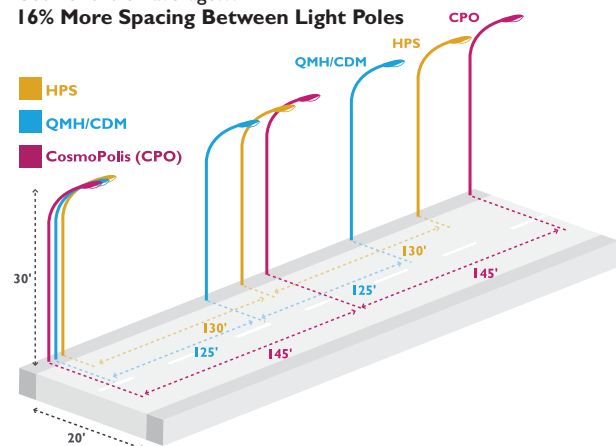
- CosmoWhite 60W instead of HPS 70W.
- CosmoWhite 140W instead of HPS 150W, MV/QMH 175W.

### 3. Optical Efficiency

#### Improved optical performance.

The optimized design and precise positioning of the light source via the locking lamp base enables substantially improved optical performance. This means your luminaires can be spaced some 10–15% further apart—you need fewer light points to achieve the desired lighting performance.

CosmoPolis on average...



1) Bullough JD, Rea MS. Visual performance under mesopic conditions: Consequences for roadway lighting. Transportation Research Record 2004; (1862): 89–94.  
2) Akashi Y, Morante P, Rea MS. An energy-efficient street lighting demonstration based upon the unified system of photometry, CIE Expert Symposium on Vision and Lighting in Mesopic Conditions '05, 38–43, Leon, Spain, 2005.  
3) Mulder M, Boyce PR. Spectral effects in escape route lighting. Lighting Research and Technology 2005, 37(3), 199–218.



#### 4. Dependable Service

Constant light output over a long period of time for more lamps. CosmoWhite™ lamps have a long rated average life<sup>1</sup> of 20,000 hours. Additionally, at 12,000 burning hours, there is only a 10% lamp failure rate with a lumen maintenance of more than 80%.

By comparison to the following lamps:

- At 8,000 burning hours ceramic metal halide lamps have a 10% lamp failure rate with a lumen maintenance of only 80%.
- At 8,000 burning hours quartz metal halide lamps have a 10% lamp failure rate with a lumen maintenance of only 60%.

Advance CosmoWhite ballast.

Advance's dedicated HID electronic ballast for CosmoWhite lamps has an expected lifetime of 60,000 hours (5% failure rate). Electronic ballasts also eliminate the need for power factor correction capacitors and ignitors.



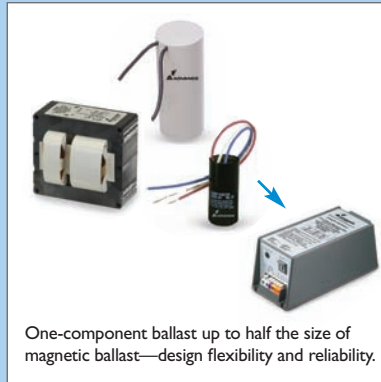
<sup>1</sup>) Rated average life is the life obtained, on the average, from large representative groups of lamps in laboratory tests under controlled conditions at 10 or more operating hours per start. It is based on survival of at least 50% of the lamps and allows for individual lamps or groups of lamps to vary considerably from the average.

## Miniaturization is More than a Design Trend

Miniaturization to meet the needs of today's end-user. CosmoWhite™ lamps are 65% smaller than respective quartz metal halide, ceramic metal halide, high pressure sodium and mercury vapor lamps. The CosmoPolis™ dedicated electronic ballast is up to half the size of quartz metal halide, ceramic metal halide, high pressure sodium and mercury vapor magnetic ballasts.

A compact lighting system allows:

- Smaller, lightweight luminaires, using light-duty poles.
- Less raw materials used to conserve resources.



## 5. Compact System

Like many of the latest lamps, CosmoWhite™ lamps are only designed to run on electronic ballasts, and present the following benefits:

- High system efficiency to save energy.
- Compact size and low weight provide design flexibility and easy installation.
- Mains voltage fluctuations do not affect light output, so material costs can be reduced by downsizing wire and switchgear.
- Only one ballast component to simplify servicing.

Advance is one of the preferred suppliers of electronic ballasts for today's advanced lamp systems. CosmoPolis™ lamps and ballast were developed together to ensure perfect compatibility and reliability.

In addition:

- Advance's CosmoWhite ballast has outdoor long-life heavy-duty specification (60,000 hours).
- Peak voltage protection assists in safeguarding the lamp.
- Lightning/surge protection to 10kV, EMC/EMI compliance.
- Fully potted box, protecting components against dust, moisture and vibrations.

1) The TCLP is the US EPA's Toxicity Characteristic Leaching Procedure (TCLP) for non-hazardous waste status.

## 6. Sustainability

Environmental issues have always been important, and Philips has adopted an EcoDesign approach.

Because of its outstanding EcoDesign performance, CosmoPolis is one of Philips Green Flagship products:

- High efficacy lamp and highly efficient ballast reduce CO<sub>2</sub> greenhouse gas emissions.
- Long life reduces resources needed to manufacture replacement lamps and ballasts and reduces disposal costs.
- Miniaturization of lamps and ballast cuts material use both in manufacture and packaging and transport volume.
- Ballast is lead-free.
- Lamps pass the TCLP<sup>1</sup>. However, state and local laws may differ, check state and local laws, rules, and regulations regarding disposal.

EcoDesign is environmentally conscious product design. Philips product development involves focusing on the following areas when developing products:



**Green Flagship Product** A product determined by Philips to offer better environmental performance in two or more of the above areas, compared with its predecessors or closest commercial competitors.



**Dow Jones Sustainability Index**  
 Philips is Market Leader in Corporate Sustainability at the Dow Jones Sustainability Index in both 2004 and 2005.



# Philips CosmoPolis™ Outdoor Lighting System

## Ordering, Electrical and Technical Data

Product Number	Ordering Code	Lamp Base	Lamp Wattage	Color Temp.	CRI	Approx. Initial Lumens <sup>1</sup>	Approx. Mean Lumens <sup>2</sup>	Rated Average Life <sup>3</sup>	MOL (In)	LCL (In)
<b>Philips CosmoWhite™</b>										
15731-3	CPO-TW 60W/728	PGZ12	60W	2800K	70	6,900	6,200	20,000	5.20"	2.32"
15732-1	CPO-TW 140W/728	PGZ12	140W	2800K	70	16,500	15,840	20,000	5.79"	2.60"

- 1) Measured at 100 hours of life in a horizontal operating position.
- 2) Approximate mean lumen output at 40% of lamp rated average life. Measured in vertical and horizontal operating positions.
- 3) Rated average life is the life obtained, on the average, from large representative groups of lamps in laboratory tests under controlled conditions at 10 or more operating hours per start. It is based on survival of at least 50% of the lamps and allows for individual lamps or groups of lamps to vary considerably from the average.

- At 12,000 burning hours there is only a 10% failure rate with a lumen maintenance of more than 80%.
- At 40% of rated average life, lumen maintenance is above 90% for both 60W and 140W.
- High efficacy—up to 118 lumens per watt.
- CosmoWhite lamps are “universal burning”, which means that they can be operated in both horizontal and vertical applications. However, the light-technical properties are slightly different in vertical burning position compared to the horizontal position. When rotating the lamp from the horizontal towards the vertical position, the color temperature, CRI, luminous efficacy and lamp lifetime drop compared to the horizontal data.
- U/V block similar to MasterColor® lamps.
- Ignition time 30 seconds, re-strike time is 15 minutes.
- Lamp Hg content (1.2 mg for 60W lamps—2.4 mg for 140W lamps).

### CosmoWhite Lamp (For Enclosed Fixtures Only) WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS

**R**“WARNING: These lamps can cause serious skin burn and eye inflammation from short wave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available.” This lamp complies with FDA radiation performance standard 21 CFR subchapter J. (USA:21CFR 1040.30 Canada:SOR/DORS/80-381)

If the outer bulb is broken or punctured, turn off at once and replace the lamp to avoid possible injury from hazardous short wave ultraviolet radiation. Do not scratch the outer bulb or subject it to pressure as this could cause the outer bulb to crack or shatter. A partial vacuum in the outer bulb could cause glass to fly if the envelope is struck.

**WARNING:** The arc-tube of metal halide lamps are designed to operate under high pressure and at temperatures up to 1000° C and can unexpectedly rupture due to internal or external factors such as a ballast failure or misapplication. If the arc-tube ruptures for any reason, the outer bulb may break and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

This lamp contains an arc tube with a filling gas containing less than 6.6nCi of Kr-85 and is distributed by Philips Lighting Company, a division of Philips Electronics North America Corporation, Somerset, New Jersey, 08875

### RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE.

Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.

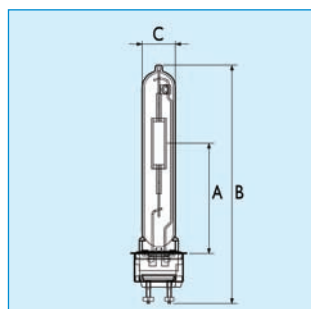
**CAUTION: TO REDUCE THE RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE RESULTING FROM AN ARC TUBE RUPTURE, THE FOLLOWING LAMP OPERATING INSTRUCTIONS MUST BE FOLLOWED.**

### LAMP OPERATING INSTRUCTIONS:

1. RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE. Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.
2. Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
3. Use only in an enclosed fixture capable of withstanding particles of glass having temperatures up to 1000°C.
4. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
  - A. Operate lamp only within specified limits of operation.
  - B. For total supply load refer to ballast manufacturer's electrical data.
  - C. All CosmoWhite lamps require a PGZ12 socket rated to withstand a 5000 Volt pulse.

5. Periodically inspect the outer envelope. Replace any broken lamps and lamps that show scratches, cracks or damage immediately.
6. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
7. Protect lamp, lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.
8. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock, and color appearance may vary between individual lamps.
9. Lamps may require 10 to 15 minutes to re-light if there is a power interruption.
10. Take care in handling and disposing of lamps. Don't break the outer bulb of an end of life lamp. If an arc tube is broken, avoid skin contact with any of the contents or fragments. Check with federal, state, and local regulations regarding disposal.
11. Use this lamp only in a fixture that contains an Advance CosmoWhite electronic low frequency square wave ballast.
12. When inserting a new lamp, hold it by the quartz bulb, not by the metal lamp base; twist the lamp 45° clockwise in the lamp holder to ensure proper electrical and mechanical connection.
13. Store the lamps in cool and dry conditions to prevent the oxidation of the exterior metal parts.
14. Consult your Philips Lighting or Advance representative if you have any questions.

Product Number	Nominal System Power (Wattage)	Nominal Lamp Power (Wattage)	Expected Lifetime Max. 5% Failure Rate	Ambient Range Celsius	Rated Mains	Mains Freq. (Hz)	Power Factor (Nom)	Dimensions (W x H x D) (In)
<b>Advance CosmoWhite Ballast</b>								
ICW60NLS	67.3	60W	60,000 hours	-20°C/+50°C	220-277V	50/60	0.95	2.56" x 2.56" x 5.31"
ICW140MLS	153.5	140W	60,000 hours	-20°C/+50°C	220-277V	50/60	0.95	2.56" x 2.56" x 5.91"



### Lamp Dimensions (INCH):

CosmoWhite 60W

A – 2.32"

B – 5.20"

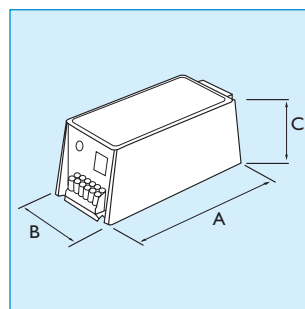
C – 0.75"

CosmoWhite 140W

A – 2.60"

B – 5.79"

C – 0.75"



### Ballast Dimensions (INCH)

CosmoWhite 60W

A – 5.31"

B – 2.56"

C – 2.56"

CosmoWhite 140W

A – 5.91"

B – 2.56"

C – 2.56"

Philips Lighting Company  
200 Franklin Square Drive  
P.O. Box 6800  
Somerset, NJ 08875-6800  
1-800-555-0050  
A Division of Philips Electronics North America Corporation

Philips Lighting  
281 Hillmount Road  
Markham, Ontario  
Canada L6C 2S3  
1-800-555-0050  
A Division of Philips Electronics Ltd.

[www.philips.com](http://www.philips.com)



10275 West Higgins Road  
Rosemont, IL 60018-5603  
1-800-322-2086  
A Division of Philips Electronics North America Corporation

[www.advancetransformer.com](http://www.advancetransformer.com)



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