



metrolight  
Environmental Lighting



# Company

## Contact...

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Web: [www.metrolight-es.com](http://www.metrolight-es.com)

General Manager: Santiago Castellot Gracia

Founded: 2002

Activity: Lighting Technology

Actividad: Manufacture and distribution of lighting fixtures, Led lighting technology products and equipment.



of:

PREMIO A LA  
EXCELENCIA  
EMPRESARIAL  
EN ARAGÓN



## Values...

Metrolight S.L. manufactures and distributes high efficiency LED luminaires and lighting products of low consumption. Metrolight has over 20 years of experience.

Energy efficiency

Strengthening research, technological development and innovation implemented LED technology in all its projects.

Continuous improvement :

Products and services, and as something you can count, measure and demonstrate.

Environmental protection.

Member of the EC program "GREEN-LIGHT" to promote the reduction of energy consumption, and avoid polluting systems.

Ethics and Social Responsibility

Economic and Social Objectives together, to integrate them into the daily life of employees with a stable solution, increasing productivity and human development of all members of Metrolight.

## We manufacture...

Traffic Lights



Traffic Signs



LED Beacons



LED Street Light



Petrol Station Luminaires





# Traffic Lights

Incorporating Traffic Lights LED technology  
at municipal facilities

# Incorporating **LED Traffic Lights technology** at municipal facilities

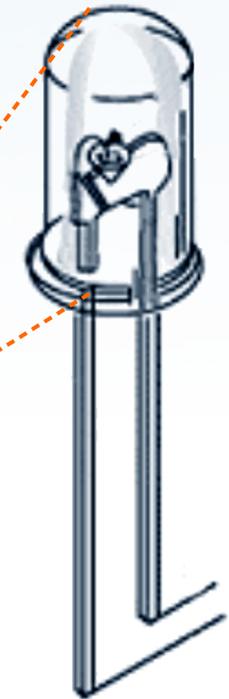
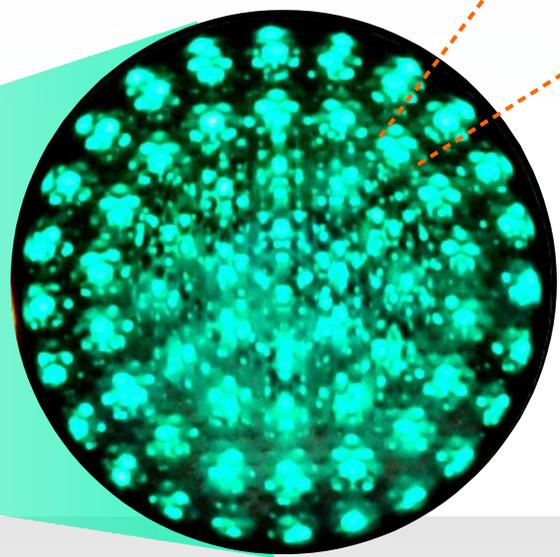


# Traffic Lights

## LED parts



- Epoxi Encapsulated
- Gold Contact
- Anode



- Semiconductor Chip
- Cathode with reflector
- Plain Mark
- Indicates Cathode
  
- Cathode Terminal (negative)
- Shorter than the anode

# Traffic Lights

## LED PARTS

Epoxi Encapsulated

Gold Contact

Anode



Semiconductor Chip

Cathode with reflector

Plain mark

Indicates Cathode

Cathode Terminal (negative)

Shorter than Anode



### Epoxi Lens

It maintains all structured packing, determines the light beam, reflector protects the chip, light flux extracted.

### Conductor Cable

Very thin wire connecting each terminal to the conductive filaments.

### Chip

It consists of two layers of semiconductor emissive material. When atoms are excited by an electron interchanging current flow light effect occurs.

### Reflector

It is below the Chip reflecting and projecting light out, only 3% is trapped.

### Cathode

Copper alloy filament and leads negative charge. The cathode is shorter than the anode to facilitate faster and more accurate assembly in the circuit .

### Anode

Copper alloy filament and leads positive charge.

# Main advantages of the LEDs

High levels of luminous flux and directed intensity



# Main advantages of the LEDs

High efficiency, energy saving.

50w Halogen lamp illuminates power 25 lumens / W gaining a total of 1.250 lumens.

To achieve the same illumination lamp **LEDs** are going to need 90 **LEDs** (using bright **LEDs** that illuminate 400cd / unit), this way we will have the same lighting with both lamps but yet our consumption with **LED** lamp will be 4 times less because it only consumes 6,3w.

( Aprox datas )



# Main advantages of the LEDs

All colors.

The **LED** is a device wavelength fixed but **can work in a wide band of spectrum**.

To cover all this bandwidth on the market there is a **wide range** of LEDs that allow us to illuminate with a specific wavelength, or what is the same in a certain **color** (red, green, amber, white and even ultra violet)



# Main advantages of the LEDs

## Low heat generation

Low heat generation because the **LED** is a device that **operates at low temperature** in relation to the light it provides.

**Other lighting systems** at equal brightness that the LED **emit more heat**.



# Main advantages of the LEDs

High resistance to shock and vibration

Absorbs possible vibrations to which it may be subjected **without producing equipment failures or lighting variations.**

This is because the **LED lacks luminescent filament** thereby preventing luminance variations thereof and break.



# All Traffic Light options.

Multiple installation options



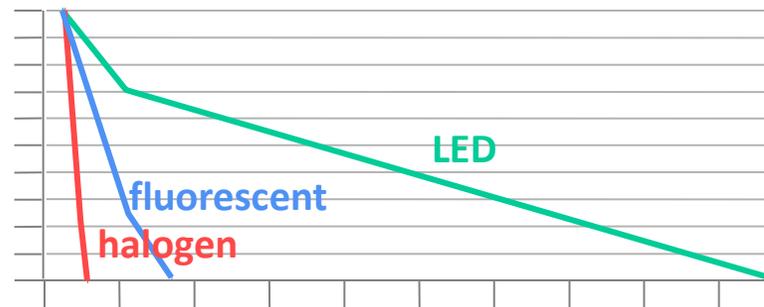
# Main advantages of the LEDs

## Comparative

Average Life	hours	
<b>LED</b>	<b>100.000 h</b>	
<b>Fluorescent</b>	<b>20.000 h</b>	
<b>Halogen</b>	<b>4.000 h</b>	



waste of brightness	-20 %	-30 %
<b>LED</b>	<b>45.000 h</b>	<b>100.000 h</b>
<b>Fluorescent</b>	<b>5.000 h</b>	<b>20.000 h</b>
<b>Halogen</b>	<b>1.500 h</b>	<b>4.000 h</b>



# Using LEDs in traffic lights

## Proposal

It saves up to 90% of electricity consumption and maintenance costs, due to the extremely long life of these products (10 years minimum).



# Using LEDs in traffic lights

## Proposal

Because of its profitability, LED lamps Traffic Lights give the expected response because **they use only 10%** of the energy consumed by incandescent lamps have a **life expectancy 50 times** and generate significant energy savings and maintenance , satisfying the aim of achieving greater reliability and public safety.



# Using LEDs in traffic lights

## Proposal

Thanks to its low power consumption, the use of LEDs involves environmental benefits derived from a **lower CO2 emissions.**



# Traffic Lights LEDs

## Key features for Traffic Lights Optics

Respect  
for the **environment**

The energy saved results in less  
electric generators working and a  
better environment for everyone.

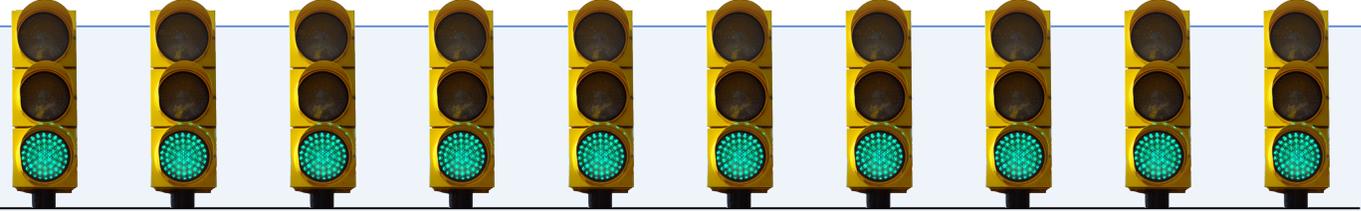


# Traffic Lights LEDs

Key features for Traffic Lights Optics

## Minimum maintenance.

Average life time 10 years.



## Easy replacement

Direct optic replacement | retrofit



- Vehicles 200mm Red
- Vehicles 200mm Green
- Vehicles 200mm Amber
- Pedestrian Red
- Pedestrian Green
- Negative Arrow Red
- Negative Arrow Amber
- Positive Arrow Green
- Bicycle Red
- Bicycle Green

# Traffic Lights LEDs

## Key features for Traffic Lights Optics

### Increased operational safety

due to the durability of the LED's, it is advisable to use only one red unit for the "STOP" at traffic lights and not two, as is done at traffic lights incandescent light and halogen.



# Traffic Lights LEDs

## Key features for Traffic Lights Optics

- Spotlights proof sunlight.
- Ultraviolet rays do not affect the optical.
- Neutral condition when Optic is off.
- No Ghost effect caused by sunlight.

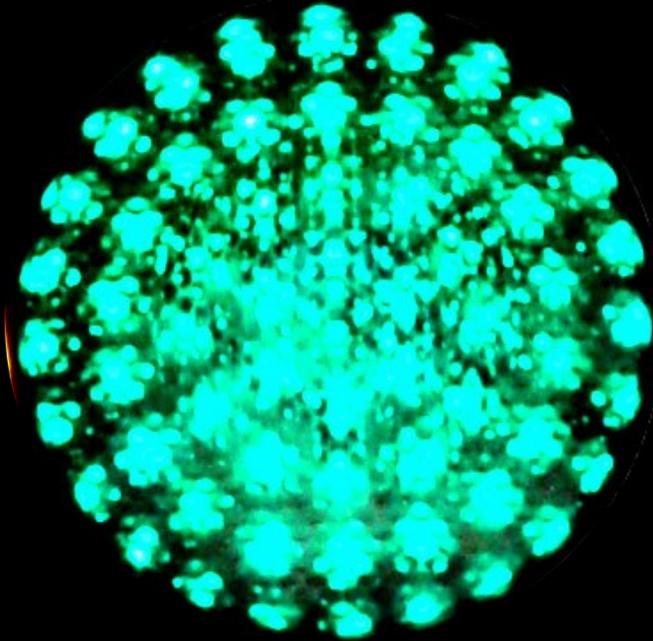


# Traffic Lights LEDs

## Key features for Traffic Lights Optics

- **Uniform light signaling**

A blown led represents only a small loss percentage of the total light output.



# Traffic Lights LEDs

Key features for Traffic Lights Optics



## Increased road safety

- **Led Traffic Lights provide greater brightness and luminosity.**

# Key features for Traffic Lights Optics.

Also...

Designed for **direct replacement** in existing sections and new facilities.

- Comply with **international standards and norm**
- **Resistant to dust and moisture. IP66**
- Life expectancy **10 to 20 years.**
- Estimated **minor glitches 3% after 200,000 hours of operation**
- Operating temperature: **-40 ° C to + 80 ° C.**
- **High impact resistance**, prevents vandalism.
- **1% lower losses of light with 1 LED failure.**
- With greater range of **resistance to vibrations**
- caused by wind and traffic.



# Key features for Traffic Lights Optics.

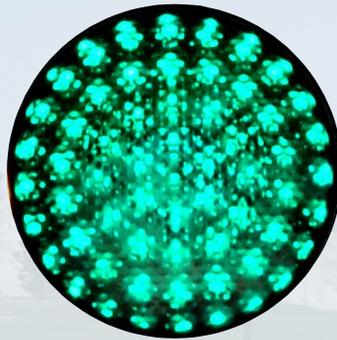
Also...

Optical Led units are manufactured in three sizes:

- **100 mm, 300 mm and 200 mm diameter** to fit any standard light box, thus achieving a quick and easy replacement of existing units.



200 mm



300 mm



# Standard Traffic Light vs. Led Traffic Light

## Security



### INCASDENCENT



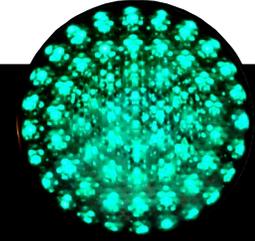
Average Lamp Life  
→ **6 months**

Great **Luminosity waste**  
after **5.000 hours**.

**Non uniform** light signaling

**Low contrast** with sunlight.

### LEDS



Average LED Life  
→ **10-11 years** / 10 years AllnGaP

Luminosity waster  
after 10.000 hours → **5 to 10 %**

**Uniform** light signaling

**High contrast** with sunlight  
and even at superior distances.

# Standard Traffic Light vs. Led Traffic Light

## Security



### INCANDESCENT

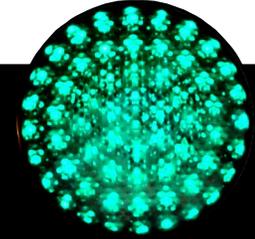


**"Ghost Effect"** due sunlight reflection.

**No neutral condition** with Traffic Light off as using colored lens.

In case of Lamp Blown, **Traffic Light is complete off.**  
The break of the filament can cause a short circuit damaging the controller.

### LEDS



**No "Ghost Effect"**

**Neutral condition** as not colored lens used.

A Blown led it only represent a luminosity **loss of 0,5 %**  
Failure Average (MTBF) at 70°C → **1.500.000 hours.**

# Standard Traffic Light vs. Led Traffic Light

## Maintenance



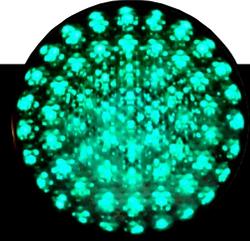
### INCANDESCENT



Yearly **internal and external** Traffic Light Cleaning process.

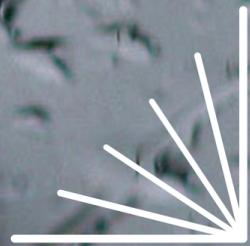
Replacement every **6 months**.  
**Semi-Annual Preventive Maintenance.**

### LEDS



Limpeza anual externa (lente).  
**No necesita limpieza interna**  
(unidad sellada)

Replacing the unit after **more than 10 years**.  
Low sensitivity to vibration and shock.  
**No preventive maintenance.**



metrolight

Environmental Lighting

# Signalling

Road and street signs for all places and situations.

Custom development to ensure a perfect reporting and total security for the user.



# Signalling

Road and street signs for all places and situations.  
Custom development to ensure a perfect reporting and total security for the user.

## URBAN Signalling



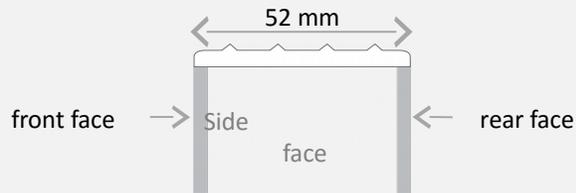
## STREET Signalling



### SIGNALLING INFORMATION MODULES

#### Élite

- Side profile of **52 mm**
- **rectangular or arrow**
- **Width 600 - 2200 mm / Height 300 – 600 mm**



#### Urban

- Side profile of **32 mm**
- **rectangular or arrow**
- **Width 500 – 1200 mm / Height 250 – 600 mm**



#### Basic

- Side profile of **20 mm**
- **rectangular**
- **Width 500 – 1300 mm / Height 300 – 600 mm**



### POLES & ACCESORIES Y ACCESORIOS

#### CLAMPS

Made of aluminum, anodized or lacquered in different colors.  
 Ø: 90/76 mm.



#### End Cap

beautifying elements of the set of PVC.



#### Posts

Aluminum, anodized and lacquered in different colors.  
 Ø: 116/90/76 mm. Post Ø 90 mm. embedded in the of 116mm.  
 It allows you to create a pole of variable length.



Ø 116 mm  
 Wide 6,5 mm  
 Lenght 2,4m



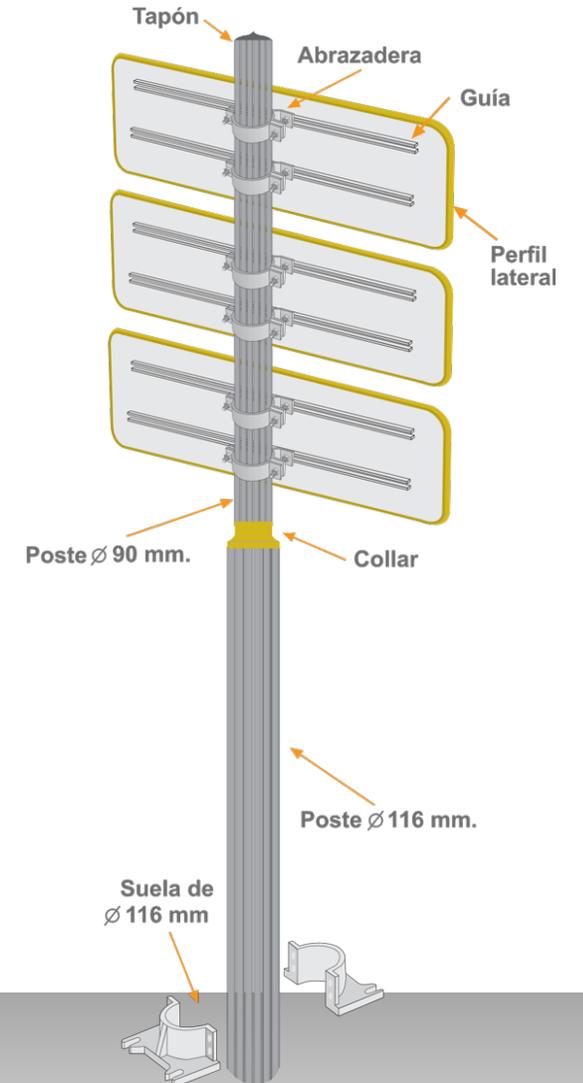
Ø 90mm  
 Wide 6,5 mm  
 Lenght 4/3,5/3,2 m



Ø 76 mm  
 Wide 3/5 mm  
 Lenght 5/3,5/3,2 m

#### Base

Of aluminum.  
 Allows orientation assembly and fast replacement without to perform civil works.  
 Ø: 116/90/76 mm.



## STREET SIGNS

### Cross

- **Street plate** made of anodized Urban Elite or lacquered models or one or two faces.
- Subject to aluminum pole ( $\varnothing$  76 mm.,  $\varnothing$  90 mm.) As a pennant.
- **Width 500-600 mm / Height 300-600 mm**



### Street

- **Street plate** made of anodized Urban Elite or models or lacquered on one side.
- installed by clamps to the aluminum pole ( $\varnothing$  76 mm.,  $\varnothing$  90 mm.)
- **Width 500-600 mm / Height 300-600 mm**



### Deluxe

- Signalling information element comprising an aluminum plate of 5mm. and a divider profile which in turn sets the signal to the post.
- **1350 mm Width / Height 300-530 mm**



### STANDARD SIGNALS

Made of **galvanized steel type FePo2G** Continuous hot dip for cold forming. **Retroreflective** sheetings on said substrate applied with glass beads.  
Poles and fasteners and galvanized steel.

#### POST



80 x 40 x 2 mm

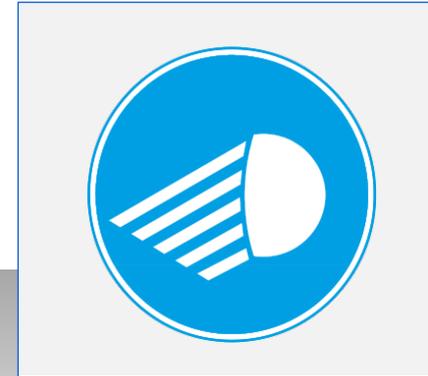


100 x 60 x 3 mm

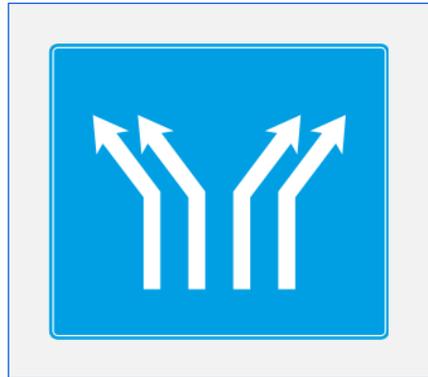


120 x 60 x 5 mm

#### FIXING ELEMENTS



### STANDARD NORM SIGNS



# Signalling

## Road Signalling

### LAMAS SIGNS

#### Posters

Made from aluminum or steel and labeled according to customer specifications vinyl or reflective at levels 1, 2, and 3.

Front View



Back View



### ALUMINIUM STRUCTURE

#### Bunting and aluminum frames.

Made of welded aluminum.

- No corrosion.
- quick and easy installation thanks to the lightness.
- Operating costs and reduced maintenance.
- Greater absorption than steel to impacts.



# LED beacons, Signalling-Illumination, Tunnels, vias, roads, ...

Signaling beacons for places with poor visibility, need to indicate the route, signaling dangerous places or injured, division roads. Possibility synchronized.

**LED beacons,  
Signalling-  
Illumination,  
Tunnels, vials,  
roads, ...**



LED Beacon  
for Road.



Solar  
Beacon ML-SR15



LED Tunnel  
Lighting Projector



Emergency Exits  
Lighting



LED Decorative  
Beacons

# Led Signalling Beacons

Led Signalling Beacons, Road, Tunnels

ROAD TRAFFIC LED BEACONS, TUNNELS, SOLAR BEACONS, PARCKINGS.



# Led Signalling Beacons

Led Signalling Beacons, Road, Tunnels

## SOLAR BEACON

ML-SR15



## TUNNEL LED PROJECTORS TITAN TNL & TITAN TNL ADVANCED



# Led Signalling Beacons

Led Signalling Beacons, Road, Tunnels

## TUNNEL

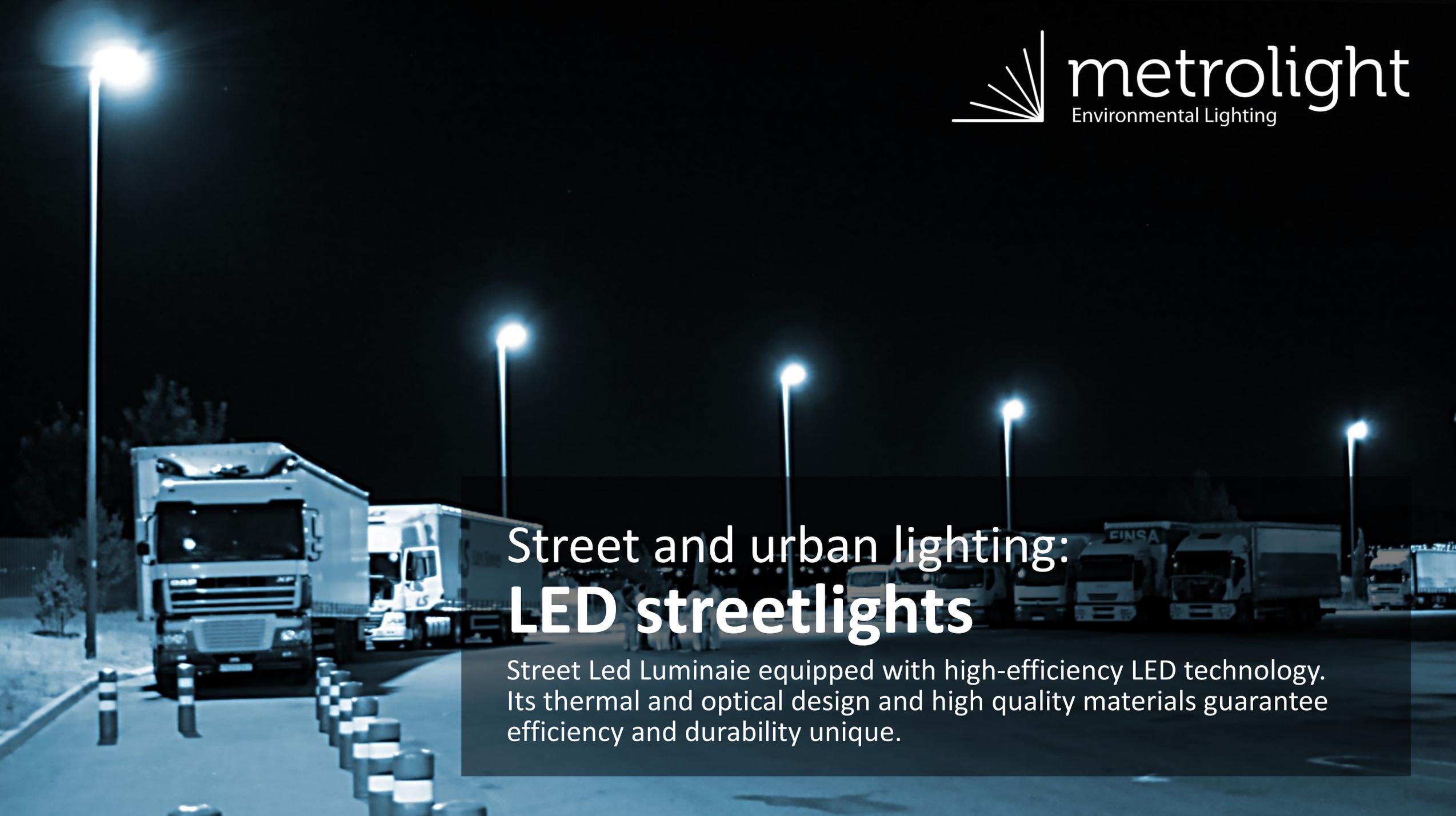
### EMERGENCY EXITS



## DECORATIVE

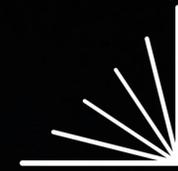
### LED BEACONS





## Street and urban lighting: **LED streetlights**

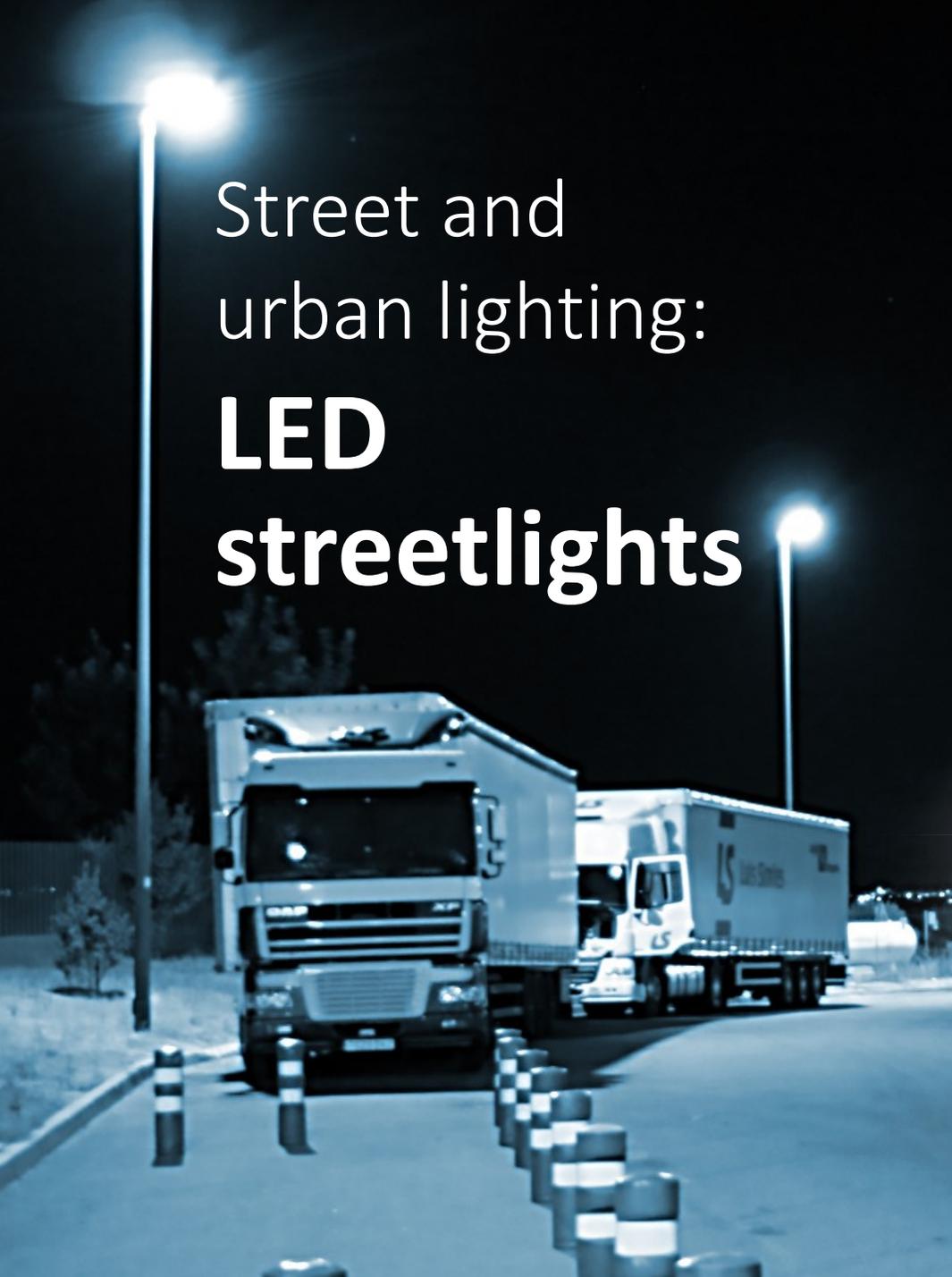
Street Led Luminaie equipped with high-efficiency LED technology. Its thermal and optical design and high quality materials guarantee efficiency and durability unique.



**metrolight**  
Environmental Lighting

Street and  
urban lighting:

# LED streetlights



LED Street Light  
ML PML2B



Solar  
STREET LIGHTING





Street and  
urban lighting:  
**LED streetlights**

Street Luminaire equipped with high efficiency LED technology.  
Its thermal and optical design and high quality materials guarantee unique efficiency and durability.

# Street Lights Urban

## LED Street Light

### LED Streetlight ML PML2B METROLIGHT



La **Pole Mount Light 28** is designed to replace discharge lamps up to 250 W mounted on pole walls or in the parking areas.

#### Increases visibility

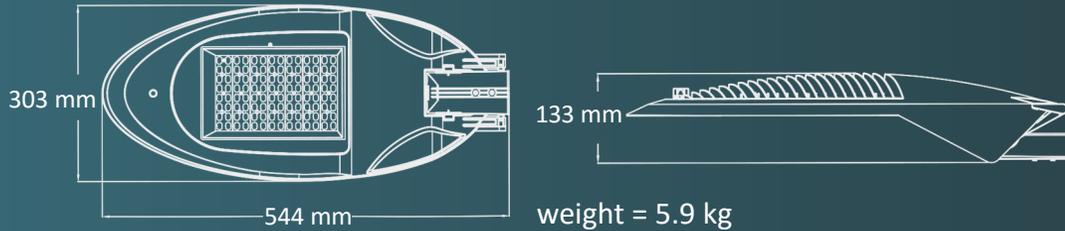
- on tickets, parking area and perimeter of the facility.
- **Easy assembly**
- without access to the interior of the post.
- **Save up to 80% energy**
- compared with conventional discharge lamps.



# Street Lights Urban

## LED Street Light

### LED Street Light ML PML2B METROLIGHT



- **7200 lumens** (nominal) 70 IRC, 5000K
- **100.000 hours** L70 life useful
- High efficiency of **120 lm / W**
- light distribution Type 111
- Controller 75 W adjustable from 1 to 10 V
- Adjustable positioner slide casting
- Angled poles 60 mm (diameter)
- Durable cast aluminum construction

### OTHER BENEFITS

- 75 W controller operates at **60 W** for a long service life and lower temperatures.
- Angular illumination **without additional adapters**.
- **Aerodynamic** minimizes the load exerted by the wind.
- LED long-life **energy saving and maintenance**
- Standard Limited Warranty **5 years**



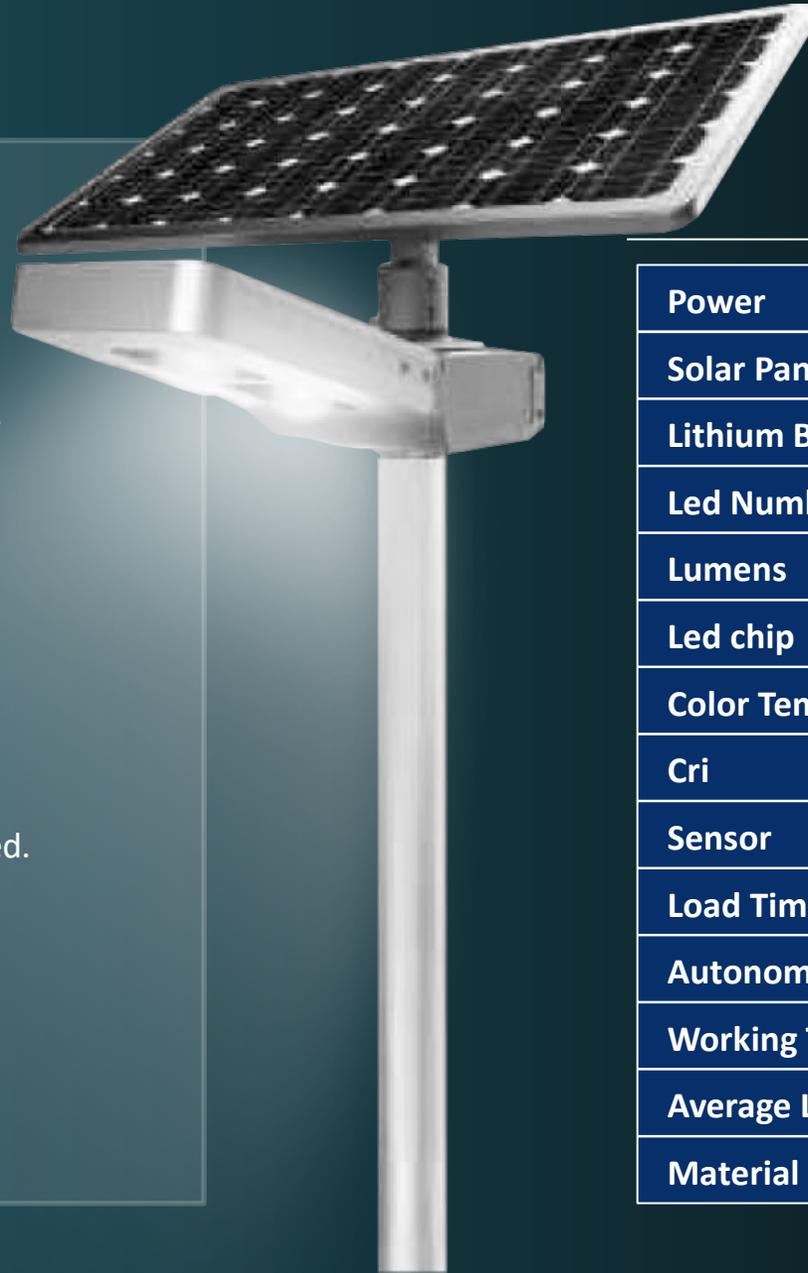
# Street Lighting Urban

## LED Street Light

### LED Solar STREET LIGHTING

Led Solar Luminaire, battery, controller

- **all in one plate.**
- **Anti-theft system**
- all elements on top.
- **Adjustable solar panel.**
- **Lithium battery**
- for durability.
- **modular system.**
- **Sensor presence** integrated.
- **Warranty 3 years.**



### CHARACTERISTICS



Power	15w	20w	30w	40w
Solar Panel	58w/18v	65w/18v	80W/18v	80w/18v
Lithium Battery	128wh	170wh	256wh	340wh
Led Number	20	20	40	60
Lumens	2.400-2.700	3.200-3.600	4.800-5.100	6.400-6.800
Led chip	BRIDGELUS			
Color Temperature	300-6.500k			
Cri	>75			
Sensor	>10 metros			
Load Time	6h			
Autonomy	24h			
Working Temperature	-20/60°C			
Average Life	>50.000h			
Material	Aluminium			



metrolight  
Environmental Lighting

Clearance 14' 6"

# Petrol Station LED Luminaires



**Luminary Fuel Canopy**  
(75w, 100w, 125w)

# LED Petrol Station Luminaire

Luminary Fuel Canopy (75w, 100w, 125w)

Three saving energy options in one.



# LED Petrol Station Luminaire

Luminary Fuel Canopy (75w, 100w, 125w)

Three saving energy options in one.



Canopy Led Luminaire for petrol station with an universal setting that allows both the placement in both new construction and replacement.

- **Directs light** fuel dispensers with a smooth transition from your location.
- The **installation** can be performed from **a single person**, given the ease of anchoring and adjustment without use alternative elements.
- **Save up to 84% energy** compared to typical HID luminaires.
- Possibility of **regulation** of **up to 30%** power.
- **Active control circuit (ACM)** which regulates the power to protect the luminaire in case of extreme ambient temperatures.

# LED Petrol Station Luminaire

Luminary Fuel Canopy (75w, 100w, 125w)

Three saving energy options in one.



## TECHNICAL DATA

- Operating Temperature: -30 to 70 ° C
- Protection degree: IP68
- LEDs per luminaire: 60
- Color: 5000 K CCT
- CRI:> 70
- Average Life: 90,000 to 100,000 hours (L70)
- Optics: Progressive reflector, tempered glass optical lenses
- Luminous Flux: 13,750 Lumen (125w), 11,500 Lumen (100w), 8,900 Lumen (75w)
- Dimensions: 40 x 40 x 27cm
- Power supply: 100-277 VAC, 50-60 Hz
- Power: 100W. Also available in 75w
- Warranty: 5 years



*Progressive Down Light 3*



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