

# Rio Series

## LED Road and Street Luminaires



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3310 810

2700K 3000K 4000K 5700K 6500K





## Why Rio?

*Energy saving, efficiency, ease of maintenance, traceability, flexible designs, products with long lifetime which are environmentally friendly have increasingly gained importance while taking actions within the scope of energy efficiency in road and street lighting in the process of transformation to LED technology.*

We tried to achieve the perfect design during all the processes as from the design phases based on these criteria while we were working on the Rio luminaire.

We have developed user centered products which has luminous intensity distribution curves that can be specially designed for different fields of application and desired power and lumen levels by adding optical design flexibility to flexible design possibilities provided by LED technology instead of conventional product ideas.

Following this phase, we finalized our works for bringing product in compliance with TEDAŞ (Turkish Electricity Distribution Co.) specifications and activating RioSMART system.



Rio luminaire is ready for both new projects and projects for transforming old systems into LEDs with its aesthetic design, environmental friendliness and SMART systems and the benefits such as suitability for utilization in M1, M2, M3, M4, M5 road lighting classes, effective energy savings and ease of maintenance.

# Utilization Suitable to All Needs

- ◆ *Entry console design suitable for horizontal and vertical mounting types*
- ◆ *Modular lenses enabling luminous intensity distribution special to different fields of application in the desired illuminance level.*
- ◆ *Optical design with glare control specially designed for the visual comfort of pedestrians and drivers*



Airports



Train Stations



Transportation



Shipping Ports



Intercity Roads



Harbors



Urban Roads



Railways



Highways



Warehouses



Rotary Intersections



Viaducts



Bus Stations



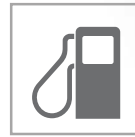
Bicycle Paths



Schools



- ◆ The implementation of fewer luminaires minimizing maintenance costs,
- ◆ Cost-effective solutions enabling the targeted illuminance levels with lower power values
- ◆ Traceable, environmentally friendly systems providing high energy savings and remote control with SMART applications



Gas Stations



Roads in Housing Estates



Dedicated Roads



Shopping Areas



Intersections



Sports Grounds



Stadiums



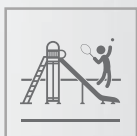
Rest Areas



Trade Centers



Camping Sites



Playgrounds



Accommodation Sites



Parking Lots



Housing Estates



Squares



Parks

# Rio Series LED Road and Street Luminaires



## Flexible Lighting Design

Rio luminaires, making it possible to design in the desired power and lumen values in line with user requests with highly efficient LED lighting solutions offer options suitable to needs with the optimum design based on fields of application.



## Fixed Lumen Output

With Rio LED Road and Street Luminaires that can be programmed to provide a fixed lumen output, high performance is obtained independent of operating hours, and desired lumen values are maintained for longer operating hours contrary to conventional systems.



## Night Mode

The technology having a night mode option that can be added through programming during the production process in accordance with user demands. A high energy-saving system that can be dimmed to 5 different light levels during different time periods of the day for luminaires in which night mode is activated.



## 1-10V Dim

1-10V dimming option that enables dimming between 10% and 100% complementing the night mode option, which can be controlled as single-stage or multi-stage through an analogue signal without necessitating any programming.



## Different Luminous Intensity Distribution Options

Offers optical diversity in accordance with the customer demands and visual comfort by considering the road type where it will be used, mounting poles, distance between the luminaires, the amount of necessary illuminance level in the area and the standards specified in the lighting regulation. Road and street luminaires suitable for M1, M2, M3, M4 and M5 road lighting classes by using modular lenses having different luminous intensity distribution curves.



## Rio Smart

Smart city lighting with SMART road and street luminaires! They can be programmed as multiple groups, they enable group control or single luminaire control, their operating status and energy consumption can be remotely monitored, they can be controlled in different light levels during the day, their location and operating status can be tracked via web interface in real-time, and they offer high energy-efficiency and minimize maintenance/failure costs!



## High Voltage Protection

A reliable design limiting the mains voltage, protecting LEDs and other electronic components from lighting and transient overvoltage loads that can occur during standard operations. A reliable and safe system that can endure up to 10 kVa of overvoltage.



## Thermal Performance

A high performance and long-lasting design suitable for operating at an ambient temperature of -40°... +65° C with aluminum injection body providing effective thermal dissipation tested in the most challenging conditions during the designing process.

# Design Details



## Mechanical Specifications

Corrosion resistant, electrostatic powder paint coated, aluminium injection body providing effective heat dissipation even at high temperatures

IK08 impact resistant body and tempered glass

A silicone gasket inserted between the tempered glass and the body providing extra protection designed to protect electronic components from adverse impacts of the external environment in order to meet the requirements of IP66

Aluminium extrusion, anti-corrosion stainless steel closure clip

Application of electrostatic powder coating in different RAL codes (optional)

Body and console design resistant up to wind speeds of 205 km/h

Entry console suitable for horizontal and vertical mounting options adjustable between 42-60 mm angles



Long lifetime and high performance cooling with its original heat sink design



## Electrical Specifications

Usage of knife type terminal blocks providing high safety in compliance with the specifications issued by TEDAŞ, automatically disconnecting energy when the cover is opened in order to intervene in the luminaire

European manufactured high efficiency LED driver with constant current output

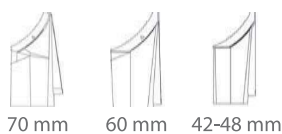
Short circuit protection with effective power factor correction which is unaffected by the mains voltage fluctuations providing a fixed lumen output and thermal protection integration

Aluminium PCB with high thermal conductivity

Overvoltage protection up to 10 kV

Ease of integration into the existing system easily with its 1-10V dim outputs (standard)

Time-adjusted dimming feature when desired with the night option



Its long lifetime performance has been tested by a 100.000 times on/off switching test



## Optical Specifications

LED lifetime over 50.000 hours compatible with LM80 and TM21 standards

High color rendering index (Ra>70)

PMMA lenses that offer alternative luminous intensity distribution curve options suitable for different fields of application

Luminaire efficiency up to 145 lm/W

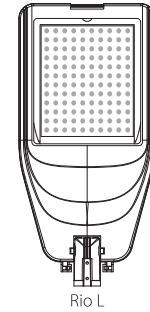


## Technical Data



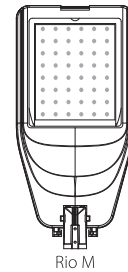
Dimensions (mm) 724x370x131x380

Body	LED	Color Temperature	Optimum Luminous Flux	Optimum Power (AC)	Luminous Efficacy
Rio L	Power LED	2700/4000/6500K	33120lm	240 W	138lm/W
Rio L	Power LED	2700/4000/6500K	36450lm	270 W	135lm/W
Rio L	Power LED	2700/4000/6500K	39600lm	300 W	132lm/W



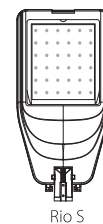
Dimensions (mm) 616x330x124x338

Body	LED	Color Temperature	Optimum Luminous Flux	Optimum Power (AC)	Luminous Efficacy
Rio M	Power LED	2700/4000/6500K	19600lm	140 W	140lm/W
Rio M	Power LED	2700/4000/6500K	25020lm	180 W	139lm/W
Rio M	Power LED	2700/4000/6500K	27000lm	200 W	135lm/W
Rio M	Power LED	2700/4000/6500K	28820lm	220 W	131lm/W



Boyutlar (mm) 476x280x110x288

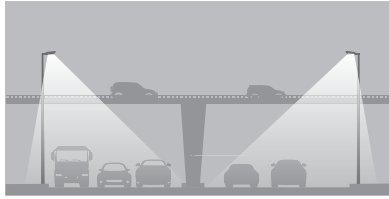
Body	LED	Color Temperature	Optimum Luminous Flux	Optimum Power (AC)	Luminous Efficacy
Rio S	Power LED	2700/4000/6500K	6525lm	45W	145lm/W
Rio S	Power LED	2700/4000/6500K	9035lm	65 W	139lm/W
Rio S	Power LED	2700/4000/6500K	10800lm	80W	135lm/W
Rio S	Power LED	2700/4000/6500K	13000lm	100W	130lm/W
Rio S	Power LED	2700/4000/6500K	15625lm	125W	125lm/W
Rio S	Power LED	2700/4000/6500K	17250lm	150W	115lm/W



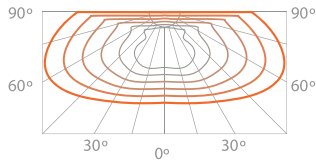


# Optical Solutions in line with Different Fields of Application

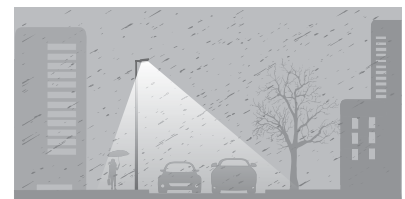
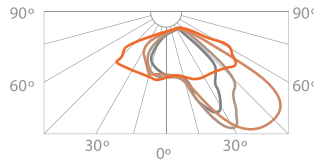
Rio road and street luminaire offers alternative optical solutions in accordance with the specifications of TEDAŞ and lighting classes in different fields of application



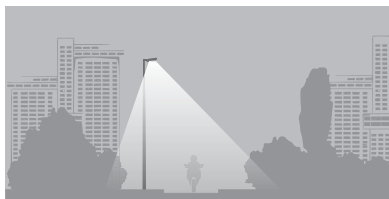
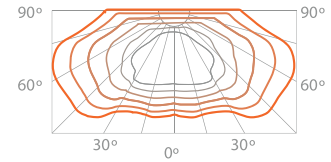
Optical solutions suitable for ME 1-2 class highway illuminations



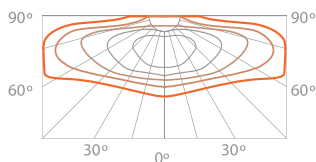
Optical solutions suitable for ME-CE class urban road-street illuminations



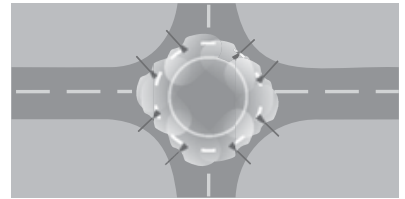
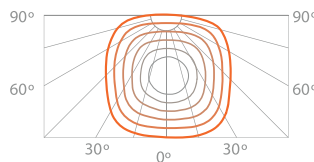
MEW class optical solutions suitable for the lighting of asphalt highways with high luminous reflectivity.



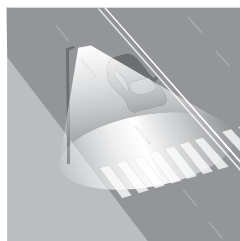
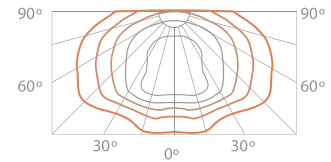
Optical solutions suitable for CE and S class fields of application in cities



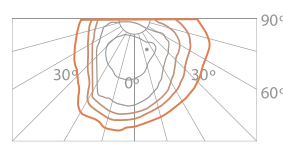
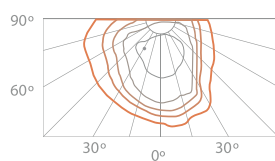
Optical solutions suitable for Square-Environment-General Lighting class



Optical solutions suitable for Rotary Intersection-Environment-General Lighting class



Optical solutions suitable for crosswalk lightings



# Rio Smart Road and Street Luminaire Control System



**The most basic function of Rio Smart system** is that it enables the remote control of luminaires. Light levels of luminaires can be adjusted from anywhere via the web application without requiring additional wiring, a switch or dimmer and without the necessity of reaching the power supply of the system.

**Rio Smart** enables ON/OFF control; it can be controlled in groups or individually according to lighting scenarios that are prepared based on the user needs / demands. All luminaires can be real-time monitored, their operating/failure status can be determined, their operating status and consumption reports can be received as feedback in desired time periods via "maps" application on the web interface which also includes real time data transferred via satellite. Luminaires can be controlled and monitored effectively within an 8-10 km area by using an internet provider without the necessity of complex system installation processes and additional costs.

## How Does It Work?

### 1. Wireless Communication

Communication with luminaires can be carried out through Wi-Fi safely, the Wi-Fi coverage area is extended by forming a communication chain from one luminaire to another. As the coverage area expands, luminaires begin to receive the signal from the nearest luminaire instead of receiving the signal from the Wi-Fi provider directly. The system can also be controlled via mobile phones which act as Wi-Fi hotspots if required.

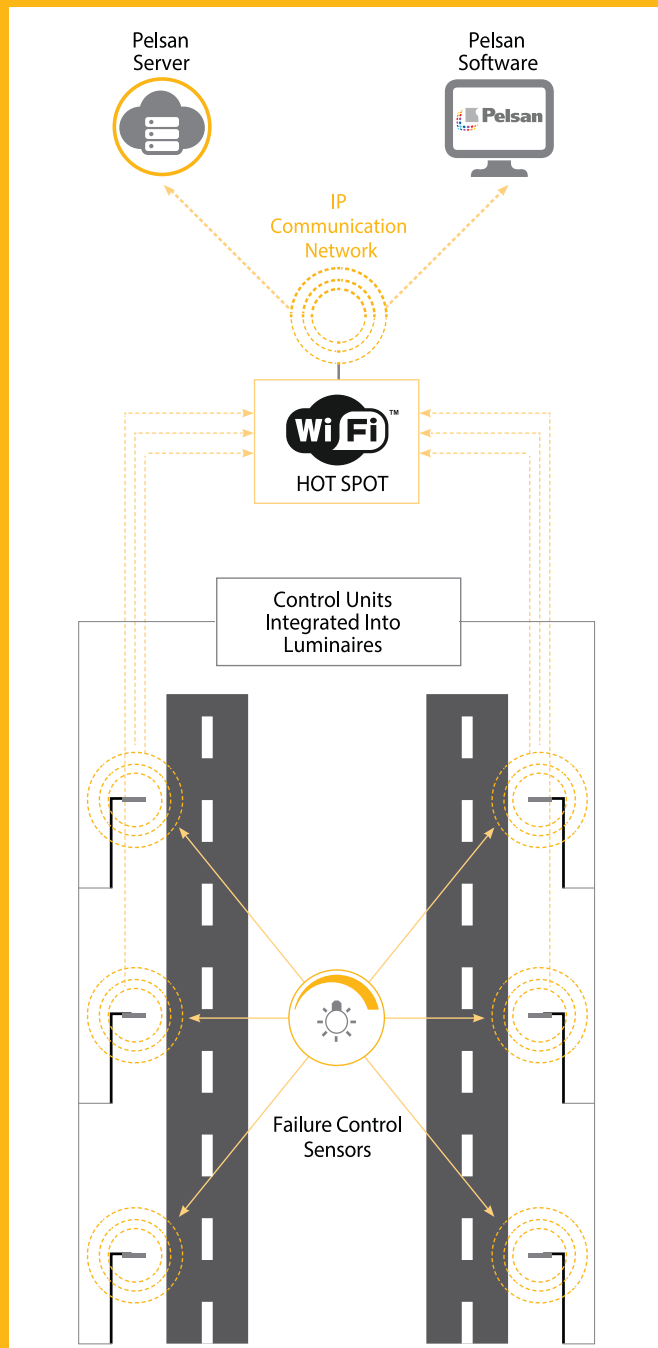


### 2. SMART Control Unit

Luminaires can be individually controlled, switched on/off thanks to the SMART control unit integrated into each luminaire, there is no need for using an astronomical relay for this. Light level adjustment option has been designed to be compatible with 1-10 V dimming systems that are often preferred in outdoor lighting.

### 3. Sensors Providing Failure Detection

Smart sensor applications displaying proper operation of luminaires, allowing the transfer of failure reasons into the system via cloud in failure states. These sensor applications can be developed based on the needs of users and fields of application on project basis if requested.

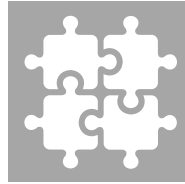


# Why Rio Smart System?



## Sustainable Energy

The basic function of the Rio Smart application is to enable the control of road and street luminaires in groups or individually in real-time via web or with predetermined scenarios. It maximizes energy savings while minimizing the process of failure maintenance monitoring and costs via its system solutions. It is a system that has been designed in order to develop environmentally friendly road and street luminaires, which are conventionally responsible for the high rates of annual electricity consumption, to lower application costs and to create smart cities in the future.



## Easy Integration and Smart Cities with Low Cost Application

Rio Smart luminaires have been designed to operate within an 8-10 km area by using a single Wi-Fi transmitter. They can be mounted quickly just like the normal road and street luminaires without requiring additional wiring costs and complex installation operations and they can be activated by being identified in the system via web in a short time.



## Real-Time Monitoring

Locations of luminaires in the application area can be seen in real-time with the "maps" application that receives data via satellite in the web interface, their operating / failure status can be monitored via web; and it can be determined whether failures stem from the luminaire itself or from the energy supply or internet connection with Rio Smart system solutions. Reports of daily / weekly / monthly consumption analysis of luminaire stacks or individual luminaires can be viewed and reported through the interface.

**1. EASY INTEGRATION**  
Systems that can be rendered ready-to-use quickly with their easy to install structure without requiring any additional time and equipment than the mounting of a normal road and street luminaire. The system can be commissioned without requiring additional wiring costs and without spending long periods of time

**2. ENERGY SAVINGS UP TO 80%**  
Road and street luminaires providing energy savings up to 80% by combining the environmentally friendly LED technology that offers low energy consumption with the SMART system

**3. FLEXIBLE and ADAPTABLE SYSTEMS**  
Systems that can be rendered functional easily and that compatible with the existing infrastructure commencing from a street or an area without the necessity of far-reaching, project based works for their installations and without causing additional investment expenses.



**4. 70% SAVINGS POSSIBILITY on MAINTENANCE COSTS and OPERATIONAL EXPENSES**  
Saving 70% on failure maintenance costs with luminaires, of which failure status can be easily determined and failure causes can be controlled on system, thanks to the system enabling remote monitoring of luminaires via the web interface; with luminaires enabling efficient intervention in case of failure without the need to use any failure detection process and without disconnecting its energy through utilizing the system

**5. SAFER CITIES**  
This is a system designed with the objective to emit higher levels of light on specified areas by real-time controlling luminous intensity of the luminaires, the locations of which can be monitored to make streets safer via utilizing smart systems which achieves the specified illuminance levels at determined hours in areas with security issues or which can be previously programmed with appropriate scenarios

## List of Technical Specifications

Parameter	Technical Data
Type	Rio S, Rio M, Rio L
Light Source	Led Module
Color Temperature	4000K - 5700K - 6500K
Sustainable Color Standard	3-5 MacAdam Steps (for all standard LED color temperatures)
Color Rendering Index	>70
Optimum Lumen Output	6525-39600 Lumens
Power	45W - 300W
Luminaire Efficacy	Efficiency up to 145 lm/W
Lifetime of Luminous Flux	100.000 hours
Fixed Luminous Flux Output	Standard
Alternative Optical Options	Classes of ME 1-2, ME-CE, MEW, CE and S, general lighting, crosswalks and rotary intersections
Protective Cover / Exterior-Surface	Tempered glass
ULOR	0%
Console Connection	42 mm - 60 mm (60 mm-76 mm for pole top)
Console Angle	(-) 10 Degrees, (-) 5 Degrees, 0 Degrees, + 5 Degrees, + 10 Degrees
Lighting Control	1-10V standard(standard), night mode programming (standard) and rotary intersection lighting classes
Smart Control	45 W - 240W (Optional)
Input Voltage	210-240V/50-60 Hz

## List of Technical Specifications

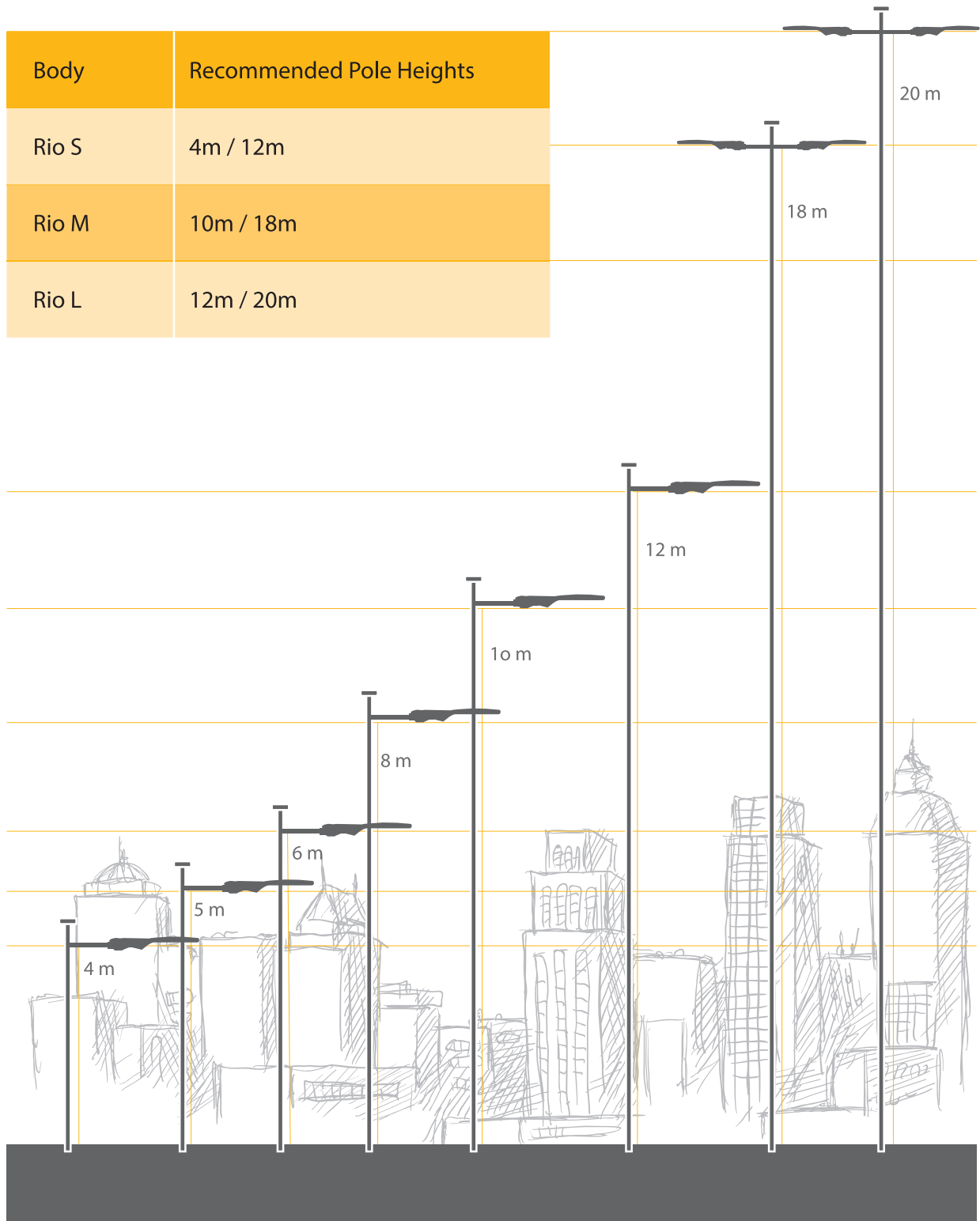
Electrical Classification	Class 1 (EN 60598)
Body Color	RAL 9006
IP Protection Class	IP66
IK Protection Class	IK08
Weight	Rio S: 6 kg, Rio M: 7.5 kg, Rio L: 10 kg
Operating Temperature Range	(-) 40 Degrees < Ta < (+) 65 Degrees
LED Module Thermal Protection	Yes
Driver Thermal Protection	Yes
High Voltage Protection	10 kV
Electrical Connection	Fireproof Silicone Cable
Maintenance & Repair	Easy Installation (Knife terminal block enabling the disconnection of energy when the cover is opened)
Certificate	 

Material	Body Kit	: Aluminium Injection
	Console	: Aluminium Injection
	Diffuser (Cover)	: Tempered Glass
	Kit	: Stainless/Metal
	Optics / Lens	: PMMA

## Optional Usage Options according to Different Heights



Rio LED road and street luminaires offer alternative options with pole heights between 4-20 m and different power-lumen output choices.





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