



STREET LIGHTS

REDUCING EMISSIONS THROUGH INNOVATIVE STREET LIGHTING SOLUTIONS



INTRODUCTION

Public lighting improves safety, prevents crime and allows for longer use of public spaces for recreational and economic activities. Street and public lighting are among the core services a local government provides, or can influence. Public lighting also significantly contributes to a city's energy consumption. The use of RE and EE measures in public street lighting provide opportunities to reduce energy demand, harvest financial savings from reduced electricity use and reduce related GHG emissions. RE solutions can be an easy option for providing lighting in areas that do not have an electricity infrastructure. This can be especially relevant in rapidly urbanizing areas or in under-developed areas of a city.

Standalone Street Lighting System



Solar Street Lights operates from Dusk to Dawn automatically switches ON after the sunset and switches OFF after sunrise. These street lights operate in standalone mode. The solar street light should be installed in a shadow free area or place where direct sunlight is available throughout the day. Street lighting system consists of SPV Module, Charge Controller Unit, Battery, Luminary, Interconnecting Cables and Pole.

Charge Controller Unit

Charging, discharging of the battery. CCU will increase the battery life by not allowing the battery to deep discharge and overcharge. During deep discharge conditions, the CCU will disconnect the light and a red LED glows on the luminary indicating that the battery is low and needs charging. The green LED on the luminary indicates that the battery is resuming charge. During overcharge conditions the CCU will disconnect the solar module and prevents overcharging of the battery.

Luminary

While induction lamp technology has matured in the last few years, it is often overlooked or underutilized in lighting applications since none of the major manufacturers promote induction lamps in any significant way. LED lighting seems to get the most "buzz" in the market as LEDs are promoted as the best alternative to conventional lighting due to their longevity. Induction lamps have a life span of 80,000 to 100,000 hours (depending on type and model), which is essentially the same as LED lamp life span. The major difference between the technologies is in conversion efficiency (energy utilization) and costs. This is particularly significant where large area lumination is needed, for example, outdoor, warehouse, or gymnasium settings.

LED however, does have the same theoretical lifespan of 100,000 plus hours as induction light, given that the integrated chip does not fail before the diode. Many LED manufacturers neglect to fit a decent high temperature IC or integrate some kind of heat dissipation device and their LEDs fail after only 10,000 hours. Induction light on the other hand, offers the same stability and lifespan as LEDs but is available in much higher wattages and brightness so that it can truly replace incandescent and discharge lamps as the next revolutionary lighting source.

Interconnecting Cables

The SPV module, luminary and battery are interconnected through the cables.

FEATURES

- Automatic Dust to Dawn operation (DTDC)
- Extremely long life LEDs (>50,000 hrs)
- No lamp blackening, No lamp replacement for several years
- Attractive and weather proof (IP 65) luminaries
- UV stabilised acrylic light diffuser

Technical Specification

General	Model 1	Model 2
Application / Use	Solar Powered Street Lighting; Outdoor	
Duty cycle	12 Hrs (DTDC)	
Number of days of Autonomy	4 Days	4 Days
System Voltage	12V DC	
Solar PV Module		
Module Type	Mono/Poly crystalline silicon	
Module Power	37Wp	60Wp
Battery		
Type	Tubular Flooded Lead Acid or VRLA (SMF Lead Acid)	
Battery Capacity (Tubular)	40Ah (Tubular)	80Ah
Solar Charge Controller (Built)		
Charge Controller type	Series Pulsed, Two Step, Built-in	
Charge Controller Rating	3A	6A
Solar Street Light Luminary - Number of Luminaries	One	
Lamp Type	High efficiency and Long Life White LED, Pure White	
Rated Lamp Wattage	7.2 W	14.4 W
Battery Enclosure - Fixing	Pole mounting	
Size (L X W X H)	503 X 230 X 273 mm	
Material & Finish	Galvanized iron, Hot Dip Galvanized	
Module Mounting Structure		
Mounting Type	Pole mounting	
Material & Finish	Hot Dip Galvanized iron	
Cable Assembly		
Module to Streetlight Luminary	1.5 sq. Mm with fork terminals, 3M	2.5 sq. Mm with fork terminals, 3M
Battery to Streetlight Luminary	1.5 sq. Mm with ring & fork terminals, 4.5M	2.5 sq. Mm with ring & fork terminals, 4.5M
Battery to Streetlight Luminary (sense)	0.5 sq. Mm with ring and fork terminals, 3M	
Pole - Length & Diameter	4.5M, 3" Dia.	
Material & Finish	Mild Steel, Galvanized	

Types – Solar Street Lights

Solar street lights are generally classified into two types :

Standalone solar street lights

Standalone solar street lights have photovoltaic panels mounted on the structure. Each street light has its own photovoltaic panels and is independent of the other lamps.

Centrally operated solar street lights

In this type, the photovoltaic panels for a group of street lights are mounted separately. All the street lights in a particular group are connected to this central power source.

Advantages

- Solar street lights are independent of the [utility grid](#). Hence, the operation costs are minimized.
- Solar street lights require much less maintenance compared to conventional street lights.
- Since external wires are eliminated, risk of accidents is minimized.
- This is a non polluting source of electricity
- Separate parts of solar system can be easily carried to the remote areas

Disadvantages

- Initial investment is higher compared to conventional street lights.
- Risk of theft is higher as equipment costs are comparatively higher.
- Snow or dust, combined with moisture can accumulate on horizontal PV-panels and reduce or even stop energy production.

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