



FTMRS SOLAR

Solar Street Light Configuration





Overview

What are the key parameters of solar street lighting systems?

This article aims to introduce the key parameters of the solar street lighting systems, including the power of the street light, the wattage of the solar panel, the capacity of battery, the solar charge and discharge controller and the street light controller.

How to design a solar street light?

1. Solar Street Lighting Demand Design Formula: $P_{LED} = E \times A / (\eta \times U \times K_{lx})$
Example: Road width 6m, distance between lights 25m, target illuminance 20 lx $\rightarrow P_{LED} = 20 \times (6 \times 25) / (0.85 \times 0.5 \times 0.75) = 20 \times 150 / 0.32 \approx 94W \rightarrow$
Choose a 100W LED module (Luminous flux 15,000 lm) 2. Solar Street Light Photovoltaic System Capacity Calculation Steps: 3.

What is a solar street light?

A solar street light is a raised lighting system powered by a photovoltaic (PV) module charging a battery that runs an LED luminaire at night. Modern systems are off-grid, smart-controlled, and designed to operate through low-sun periods. Pole/brackets & wiring, optional sensors/remote monitoring.

How much solar power does a street light use?

For a street light that consumes 900WH, after calculation, the battery panel power required by the former $= 900 \times 1.333 / 6.2 = 193.5$ Wp, and the battery panel power required by the latter $= 900 \times 1.333 / 4.6 = 260.8$ Wp. From this we can conclude that the more sunlight there is, the smaller the solar panels you need and vice versa.



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