

# Solar Floodlight:

Lighting Up Green: Beacons of a Sustainable Future

LFA Series Solar Floodlight Technical Specifications

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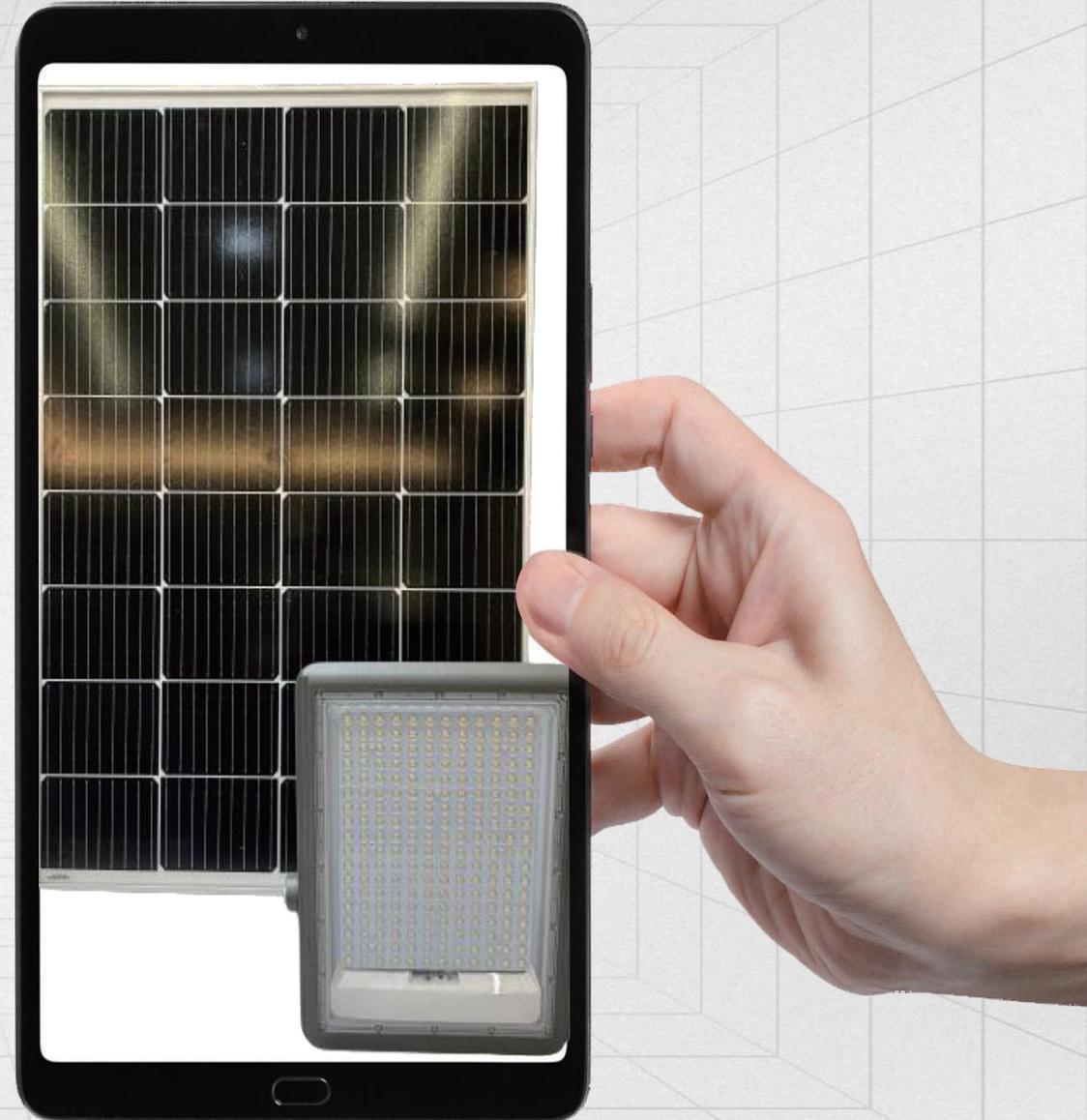
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# 1. Product Overview

## Introduction of Solar Floodlights

Solar floodlights integrate photovoltaic conversion technology with high-efficiency lighting, harnessing sunlight as a renewable energy source. These lights automatically provide illumination at night or in low-light conditions, making them ideal for residential, commercial, and industrial applications, such as courtyards, roads, ports, and sports fields.





# Product Positioning

01



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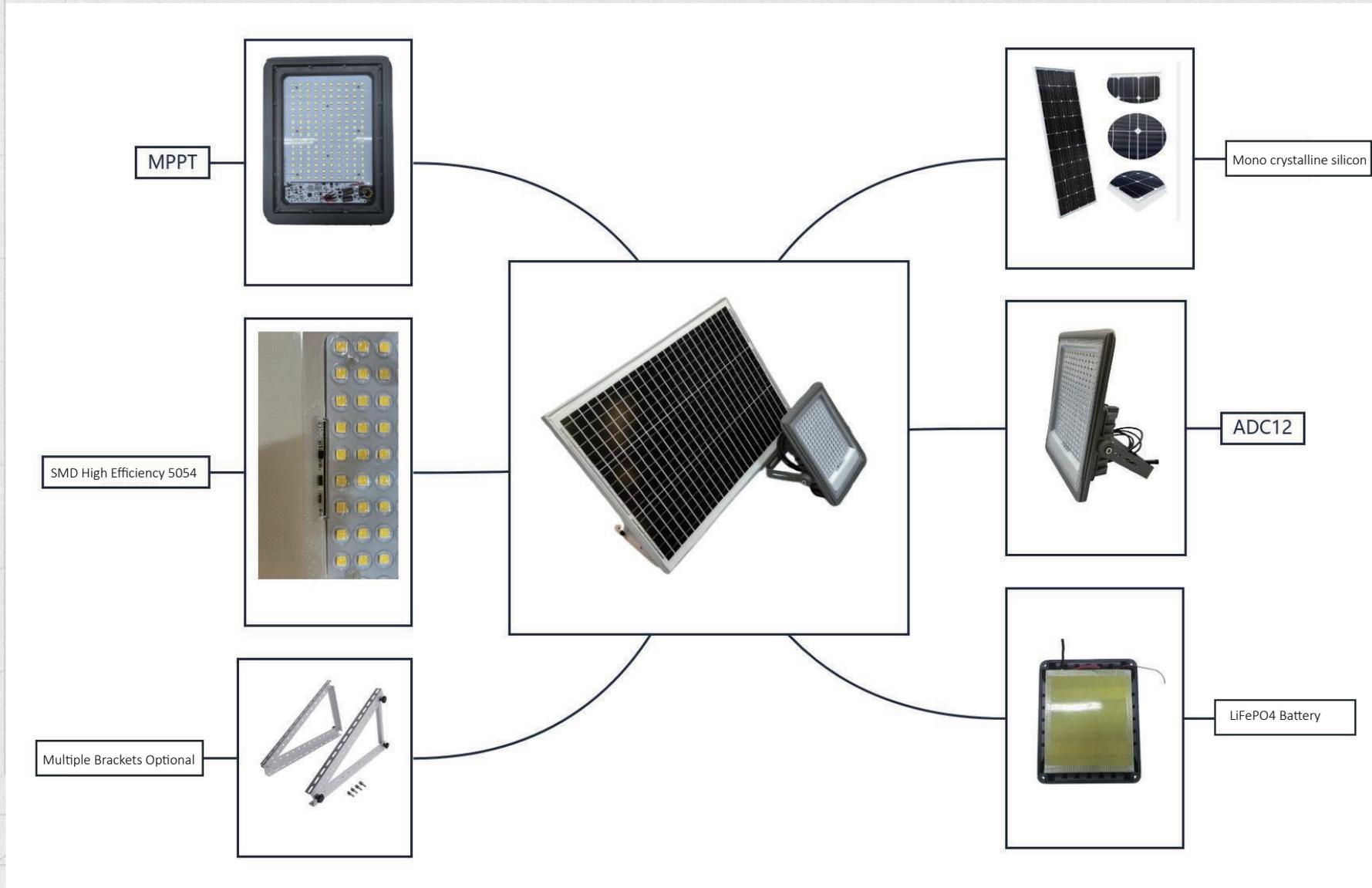
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The product is designed to deliver energy-efficient, eco-friendly, and stable lighting solutions for diverse outdoor environments. It can meet different users' needs for brightness, lighting coverage, and easy installation, and is suitable for home landscaping, commercial/landscape lighting, and sports field illumination.



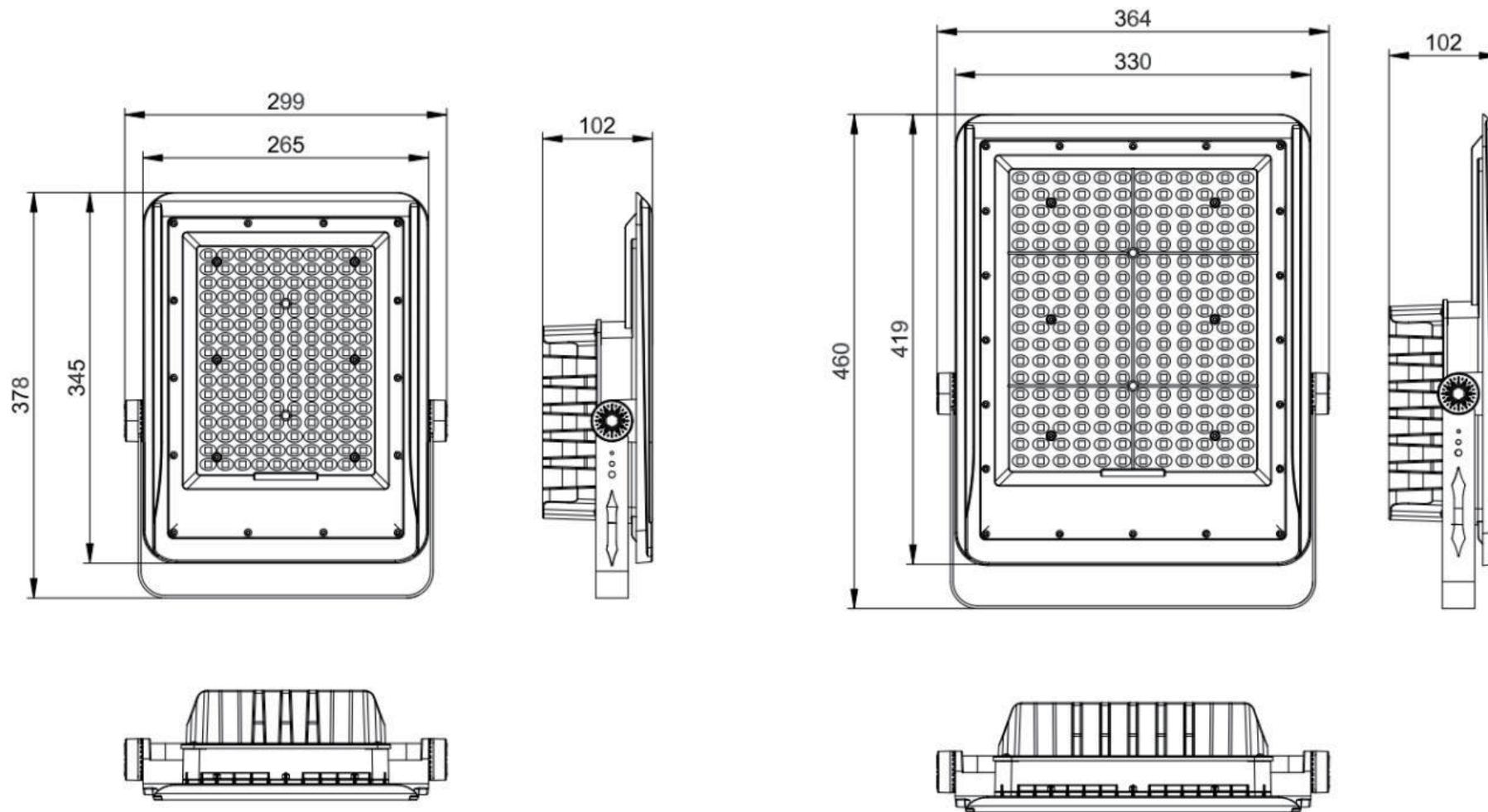
## 2.Design and Structure

### Appearance Showcase

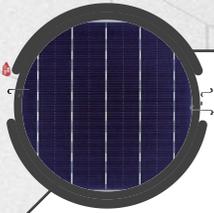


# 3.Appearance and Structure

## Dimensions



# Key Components



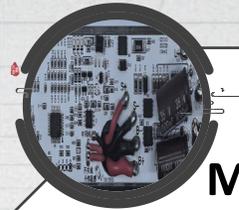
## Solar Panel

As one of the key components, the solar panel is made of 182mm mono-crystalline silicon with high photoelectric conversion efficiency. It converts the solar power to electricity efficiently under sufficient sunshine to provide continuous power supply for the lighting fixture. Its surface is specially processed with weather-resistant coating to offer excellent weather resistance to harsh environments including wind, rain, and UV radiation.



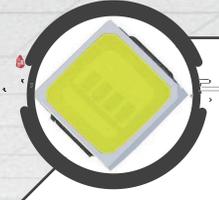
## Lighting Fixture

The lighting fixture features a durable PC lens combined with an ADC12 die-cast aluminum housing, offering both high strength and excellent thermal dissipation. Its meticulously engineered internal architecture optimizes component layout to ensure stable light output. The innovative cooling fin design significantly increases heat dissipation area, effectively lowering LED temperature and extending product lifespan.



## MPPT Controller

The MPPT integrated solar street light controller utilizes key components from internationally renowned brands including IR, TI, ST, ON, and NXP. It delivers exceptional performance with 98% charging efficiency, 97.4% driving efficiency, five-stage dimming capability, adjustable power output (0%-100%), and smart battery energy management, automatically adjusting load power based on battery level to extend lighting time.



## LED

High-efficiency 220-230LM/W quad-chip SMD 5054 LED package with actual operating power of 0.35W per chip, delivering system efficacy exceeding 200LM/W. This ultra-efficient, low-power solution is ideally suited for solar-powered lighting applications.



## Battery

High-safety LiFePO4 prismatic cell with ultra-long lifespan ( $\geq 2000$  cycles) and high-temperature charge/discharge tolerance.



## Bracket

Various solar panel mounting brackets available: U-bracket, floodlight V-bracket, large floodlight V-bracket, street light I-bracket, and adjustable street light I-bracket.



## Wiring

The product utilizes waterproof plug-in rubber cables featuring high elasticity, excellent insulation, and corrosion resistance, ensuring safe and reliable current transmission in diverse challenging environments.



## Accessories

The product uses a 16mm metal waterproof self-locking switch and metal PG9 waterproof cable gland to enhance the lighting fixture's overall waterproof performance.

## 4. Working Principle

### Convert Solar Energy into Electricity

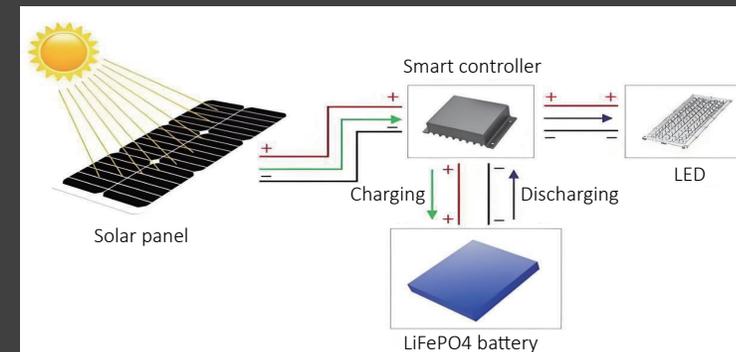
During daylight, when sunlight strikes the solar panels, photons excite electrons within the photovoltaic cells, generating directional electron flow. Through the photovoltaic effect, this process directly converts solar energy into DC electricity- an efficient and eco-friendly transformation that requires no conventional energy consumption.

### Power Storage and Management

The converted electricity flows through the charge controller into the battery for storage. The controller automatically adjusts charging current and voltage based on the battery's state of charge (SOC), preventing overcharge and over-discharge to extend battery lifespan. During nighttime or low-light conditions, the battery releases stored energy to provide stable power to the lighting system.

### Lighting Operation Process

The DC power from the battery is regulated by the driver circuit to provide optimal operating voltage and current for the LED chips. The LEDs then convert electrical energy into luminous energy, emitting bright light. This light is evenly diffused and projected onto the target area through the lampshade's refraction and scattering effects, achieving high-efficiency illumination.



# 5. Technical Parameters

## Basic Parameters

Model	LFA-20W	LFA-30W	FLA-40W	LFA-60W	LFA-80W
Power	20W	30W	40W	60W	80W
Solar Panel Power	18V/40W	18V/60W	18V/80W	18V/120W	18V/160W
Battery Capacity	3.2V/50AH	3.2V/100AH	3.2V/120AH	6.4V/100AH	6.4V/120AH
LEDS	5054/160PCS	5054/160PCS	5054/160PCS	5054/216PCS	5054/216PCS
Luminous Flux	≥4000LM	≥6000LM	≥8000LM	≥12000LM	≥16000LM
Lighting Dimension	345*299*102 mm	345*299*102 mm	345*299*102 mm	420*364*102 mm	420*364*102 mm
PV Dimension	570*400*25 mm	800*400*25 mm	540*760*25 mm	800*760*30 mm	1040*760*30 mm
Luminous Efficiency	≥200LM/W				
Controller	MPPT				
Beam Angle	90°				
Discharging Model	A. Stadium: 4H 100%; B. 12H: first 6H 100%, second 6H 60%; C. Customization				
	Please contact us				



# Performance parameters

## Average Illuminance

For average illuminance requirements, please consult our support team. We deliver uniform and optimized lighting distribution in designated areas, tailored to diverse applications including courtyard lighting, road lighting, and sports field illumination. Complimentary DIALux lighting design services are available.

## Beam Angle

Customizable light distribution patterns, adjustable illumination range for targeted lighting. Please consult our team for application-specific angle optimization

## Lifespan

With an extended lifespan of 50,000 hours, these luminaires utilize premium materials and advanced manufacturing processes to significantly reduce maintenance costs while delivering long-term, reliable illumination.

## IP Rating

Rated IP66 protection grade, featuring exceptional waterproof, dust proof, and corrosion-resistant performance. Ensures reliable operation in harsh outdoor environments, including heavy rain and sandstorms.

## 6. Product Advantages

### Energy-Efficient and Eco-Friendly

01

Harnessing solar power as the energy source, these lights require no external electricity, eliminating conventional power consumption and reducing carbon emissions. With truly zero pollution and zero emissions, they contribute to environmental protection and represent a sustainable lighting solution.

### High-Efficiency Illumination

02

Featuring high-luminance LED chips and optimized optical design, the system delivers bright, uniform lighting with superior luminous efficacy. It ensures clear illumination of target areas for diverse outdoor applications, enhancing nighttime safety and visual comfort.

### Easy Installation

03

No complex wiring required—simply mount the solar floodlight in a sun-exposed location. With tool-free fastening and plug-and-play connections, installation is quick and labor-efficient, suitable for rapid deployment across various sites.

## 7. Application Scenarios

1. Ideal for illuminating garden paths and courtyard corners, our solar floodlights create a warm, romantic nighttime ambiance. They provide safe, comfortable leisure spaces for families and guests while enhancing landscape aesthetics.
2. Elevate your villa's exterior with premium solar lighting for courtyards, facades, and entryways. Our lights accentuate architectural elegance while boosting nighttime security, seamlessly blending with upscale residential styles to create a sophisticated atmosphere.
3. Engineered for basketball/football/tennis courts, our high-intensity LED chips (200+ lm/W) deliver instant, full-field illumination. With industry-leading energy conversion rates and 8-10 days of backup power during cloudy weather, they outperform conventional lighting in both brightness and sustainability.
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## 8.Usage and Maintenance

Mount the solar floodlight in an unobstructed location with maximum sunlight exposure to ensure optimal solar panel performance. Connect all components securely, then power on the unit. The light operates automatically – charging during daytime and illuminating at night. Use the included remote (if applicable) to adjust brightness levels, set timers, or customize lighting modes.

Regularly clean the solar panel with a soft, dry cloth to remove dust/debris, maintaining peak light absorption efficiency. Inspect all connections periodically and tighten any loose parts to prevent performance issues. Check battery charge levels periodically. If abnormal discharge occurs, troubleshoot wiring or replace batteries promptly.

