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## 120W/60AH Solar Surveillance Power Kit

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Shenzhen Loyalty Security Technology Co., LTD

# 120W/60AH Solar Power Kit for 4G PTZ Camera

## LY-SPS-1260AH

### 1. Main Features

- 120W/60AH Solar Power Kit
- 18V/120W Monocrystalline silicon Solar Panel
- 12V-60AH Automotive grade Lithium battery
- EV MnNiCo ternary 18650 Lithium Battery type
- Hikvision Similar Installation Bracket with IP67 waterproof, truly Plug and Play
- All in one installation design, the lithium battery was embedded and sealed in the metal bracket
- 2 Year warranty, free replacement within one year
- Accept the solar power supply system customization

### 2. Brief Introduction

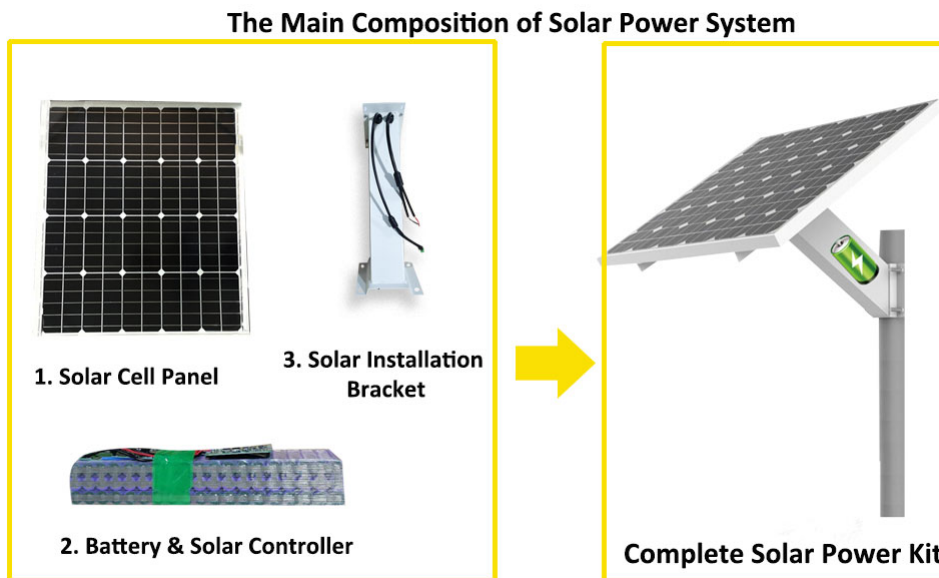


Solar energy is not only a primary energy, but also a renewable energy. It is rich in resources, which can be used for free without transportation. Without any pollution to the environment, it has created a new way of life for human beings, making society and human beings enter an era of energy conservation and pollution reduction.

LOYALTY-SECU Solar power kits are popular and energy saving worldwide which needs remote surveillance view monitoring of inaccessible or large outdoor sites which are not equipped with power supply facilities, such as the mountain orchard, ranch, fishery, vegetable plantation, construction sites, highway roads, farm and animal husbandry, reservoir and so on.

Thanks to the generous gift of nature, solar power technology brings the entire surveillance camera system to be installed and operated independently without the need for an external power supply.

### 3.The Main Composition of Solar Power System



LOYALTY-SEC Solar Power Supply System mainly consists of solar cell panel, solar controller, rechargeable battery, Solar Installation Bracket.

**1. Solar Cell Panel:** This is the core part of the solar power supply system. Its main function is to convert solar energy photons into electricity, to promote the work load. Solar panels are divided into monocrystalline silicon, polycrystalline silicon, and amorphous silicon solar panel. As monocrystalline silicon solar panel with long using life (generally up to 25 years), high photoelectric conversion efficiency, much more firm and durable when compared with other types, hence LOYALTY-SECU Solar power supply system adopting the monocrystalline silicon solar panels.

**2. Solar Controller:** Its main job is to control the state of the whole system and protect the battery from overcharge and over-discharge. It also has a temperature compensation function where the temperature is particularly low.

**3. Solar Lithium Rechargeable Battery:** For solar rechargeable battery, it mainly stores the energy converted from solar panels, generally have lead-acid batteries, lithium batteries, and can be

used for multiple cycles. LOYALTY-SECU adopts the automotive grade rechargeable lithium battery.

LOYALTY-SECU Solar power supply system voltage output has 12V DC, 24DC, 48 DC. In the whole-process monitoring system, some devices need to provide 220V, 110V AC power, while the direct output of solar energy is generally 12VDc, 24VDc, 48VDc. Therefore, in order to provide power for 22VAC and 110VAC equipment, a DC/AC inverter must be added to the system to convert the DC power generated in the solar photovoltaic power generation system into AC power. LOYALTY-SECU also accepts any customization services of the solar power supply system from the clients.

**4. Solar Installation Bracket:** Firm and durable, compatible with any brand bullet ,PTZ, dome cameras in the market, such as Hikvision, Dahua, Uniview, Axis etc..

## 4.Highlights

### 4.1. Quick and Fast Deployment

The design of battery shell and mounting bracket of solar power kit has been optimized- the lithium battery was embedded and sealed in the metal bracket in advance, which ensures no trouble with battery installation on site

Adopt Hikvision similar bracket installation design with high waterproof performance IP67 to work in extreme environment, plug and play function.

### 4.2. Reliable & Safety for Remote Monitoring

Solar power system built-in battery charge and discharge protection control board and intelligent solar controller ensures the whole solar power supply process is safe and high efficiency. Meanwhile, the all in one installation design saves space, brings 100% high water-proof ability, and minimizes the defect rate and maintenance costs.

Adopts high quality materials, high performance charge-discharge lithium battery, ensures long service life. Equipped with the automotive grade monocrystalline silicon solar panel and EV MnNiCo ternary 18650 Lithium battery with heat & cold resistance, temperature Detection etc. to ensure a long using life. Solar panel with an-reverse protection brings nearly zero risks during the installation. Also, with ultra low consumption ( $\mu$ A standard), no leak happens even when the battery has been idle for one year. And adopting the low voltage protection technology, avoid the frequent reboot while the cameras are under low voltage mode, largely reduces the failure rate.

With the real-time monitoring for the solar panel work condition, lithium battery work condition and the transformation of load power consumption.

Adopting the newest PID software algorithm, achieve the Maximum power point tracking (MPPT) for the solar panel system, ensure the most effective power input.

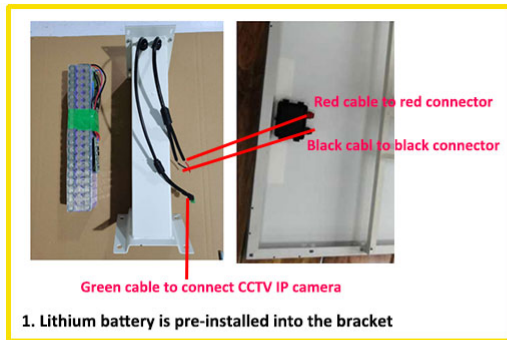
Offers 2 Year warranty and free replacement within one year

### 4.3. High Compatibility for Different Brand CCTV Cameras

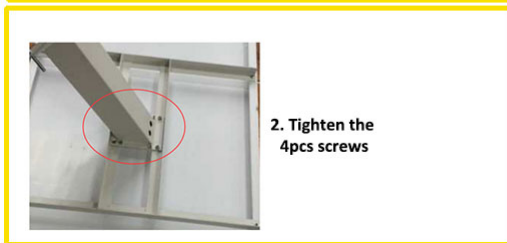
All in one package design, brings arbitrary installation possibilities for users worldwide, especially the DIY users

Intelligent solar power system can be applied to any kind of cameras, such as LS cameras, Hikvision, Dahua, Uniview cameras ect.

## 5.Quick Installation Guide



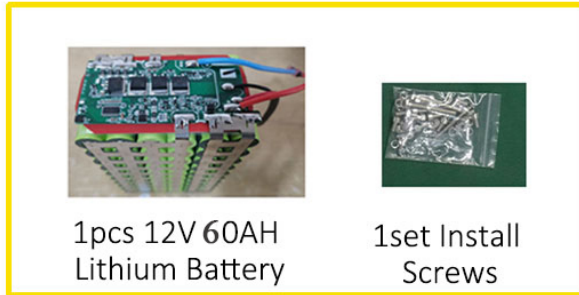
### Quick Installation Guide



## 6.Packaging List

|                               |  |
|-------------------------------|--|
| Solar Power Kit Model         | LY-SPS-1260AH  |
| Solar Power Kit Include Items | 1PCS Solar Panel, 1 PCS Lithium Battery<br>1 Set Bracket, 1 Set Install Screws |
| Solar Power Kit Carton Size   | 116*74*19CM  |
| Solar Power Kit GW            | 22KG   |

## 120W/60AH Solar Power Kit



## 7.Solar Powered Kit Specification

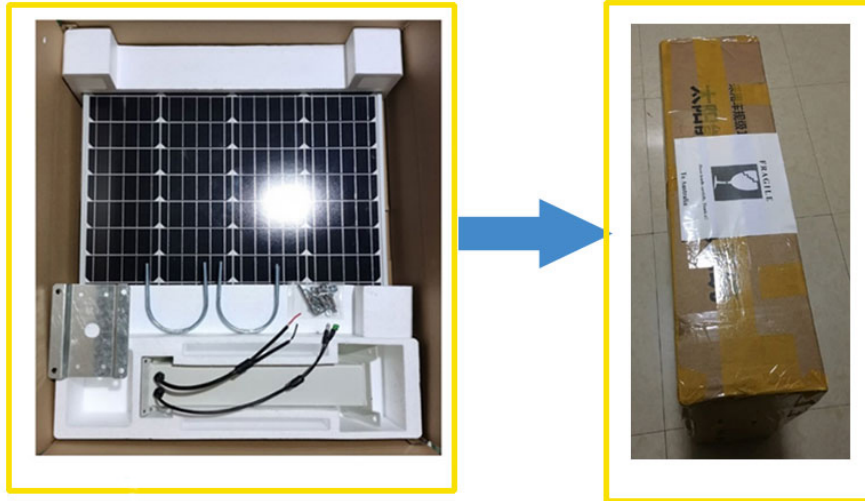
| 120W Solar Panel Specification  |                              |
|---------------------------------|------------------------------|
| Solar panel type                | Monocrystalline silicon 120W |
| Solar panel Voltage/Consumption | 18V/120W                     |
| Power tolerance                 | +3%                          |
| Rated voltage                   | 17.56V                       |
| Service life                    | 25 Years                     |
| Maximum power                   | 120W                         |
| Maximum power voltage           | 17.56V                       |
| Maximum current                 | 2.85A                        |
| Short-circuit current           | 3.45A                        |
| Open-circuit Voltage            | 22.32V                       |
| Temperature coefficient of ISC  | +0.04                        |
| TC of VOC                       | -0.38                        |
| TC of Consumption               | -0.47                        |

|                               |             |
|-------------------------------|-------------|
| TC of IM                      | +0.04       |
| TC of VM                      | -0.38       |
| Temperature range             | -40° ~ +85° |
| Rated current of bypass diode | 12A         |
| Load capacity                 | 23m/s,7.53g |
| Max load capacity of Surface  | 2400Pa      |
| Solar panel size              | 92*67*3CM   |
| Solar panel weight            | 7.25KG      |

| 60AH Lithium Battery Specification  |   |
|-------------------------------------|---|
| Battery model                       | BAT01-60AH  |
| Battery cell                        | EV MnNiCo ternary 18650 Lithium   |
| Battery capacity                    | Min 60Ah,Max 60.9Ah   |
| Nominal voltage                     | 12V   |
| Charge/Discharge protection voltage | 12.6V/9V  |
| Normal charging current             | 10A   |
| Max Charge/Discharge current        | 20A   |
| Discharge temperature (Recommend)   | -20°~ 60°   |
| Charge temperature (Recommend)      | -5°~45°   |
| Solar panel types (Recommend)       | 18V Monocrystalline / Polycrystalline silicon solar panels, thin-film solar panels  |
| Solar panel capacity (Recommend)    | Total power load ≤100W/D,Suggest to use 50W Solar Panel<br>Total power load >100W/D,Suggest to use 50W-100W Solar Panel   |
| Intelligent Solar power system      | 1.Solar panel with an-reverse protection<br>2.Support the tracking for the Max power generation efficiency of solar panel<br>3.Support the realtime detection of generation voltage and generation current, and the data upload<br>4.Support the detection of battery capacity, and the data upload<br>5.Support the detection of total load's realtime current ,and the data upload<br>6. With the low voltage protection technology |
| Storage time                        | ≥18 months(25°)   |
| Battery weight                      | 5.5KG   |

## 8. Package Box

### Package Box



120W/60AH Solar Power Kit

## 9. Actual Cases





## 10. How To Choose the Right Solar Power Kit for Your Surveillance Camera

### Step 1: Confirming the total power consumption of the surveillance camera.

Eg: For a security camera, in day time, the power consumption is 2W,  $2W * 14hr = 28Wh$ ; In night time, the power consumption is 10W,  $10W * 10hr = 100Wh$ , so in a day(24hrs), the total power consumption: 128Wh.

### Step 2: Ensure the solar panel's electricity generation capacity is greater than the surveillance camera total power consumption.

The solar power kit electricity generation capacity must be greater than the electricity consumption of electrical appliances day and night, so that it is possible to have surplus electricity stored in the battery.

\* For 120W Solar Panel, the power generation capacity is around 200~300W Per day.

\* For 60W Solar Panel, the power generation capacity is around 100~150W Per day.

You can see for the 128Wh Security camera, we can adopt the 60W or 120W solar panel.

### Step 3: Select the right lithium battery for solar power kit based on the continuous working days (under cloudy & rainy environment) you need.

Eg: Our Solar Power Kit: 120W/40AH, the total power capacity:  $12V * 40AH = 480Wh$

If need to power on the 128Wh security camera:  $480Wh / 128Wh = 3.75$  Days

The actual working hours are more than 3.75 days, because it is impossible for all 3.75 days to be cloudy & rainy, and there may have sometime can generate the solar electricity.

Suppose that the 120W solar panel generates 300W a day, if the security camera consumed 150W, then 150W of electricity is stored in the battery in that day. If the power generated by the solar panel is greater than the power consumption of the electrical appliance, then the battery volume becomes fuller and fuller on sunny days. On the contrary, the battery volume will become less and less, and the charge will never be full.

### Here's the basic table for your evaluation:

| Security Camera             |                       | Solar Power Kit |          |
|-----------------------------|-----------------------|-----------------|----------|
| Daytime Power Consumption   | $2W * 14hrs = 28Wh$   | Solar Panel     | 18V/120W |
| Nighttime Power Consumption | $10W * 10hrs = 100Wh$ | Lithium Battery | 12V/40AH |

|                            |                         |                                    |       |
|----------------------------|-------------------------|------------------------------------|-------|
| Total Consumption in A Day | 128Wh                   | Total Volume                       | 480Wh |
| Continuous Working Days    | $480Wh/128Wh=3.75$ Days | Under cloudy and rainy environment |       |



## Pick The Right Solar Panel Kit for Your PTZ Cam

**Sunshine time & Latitude**

**The Capacity of Solar Panel & Lithium Battery**

**Available Working Days For PTZ Cam**



**Short Sunshine Time & High Latitude**

**120W/40AH**



**3.75days**



**Enough Sunshine Time & Low Latitude**

**60W/40AH**



**3.75days**

Remarks:

1. 120W Solar Panel, the power generation capacity is around 200~300W Per day.
2. 60W Solar Panel, the power generation capacity is around 100~150W Per day.
3. 40AH lithium battery, the total power capacity:  $12V \times 40AH = 480Wh$ .
4. 128Wh power consumption for a PTZ cam in a day.
5. 40AH Battery supports a PTZ Cam working time:  $480Wh/128Wh = 3.75days$
6. Enough sunshine time & low latitude , pick 60W solar panel;  
Short sunshine time & high latitude , pick 120W solar panel

## 11. Why Choose Us?

### 11.1.High Effective Solar Panel

LOYALTY-SECU Solar power kit adopts the monocrystalline silicon solar panels which with long using life (generally up to 25 years), high photoelectric conversion efficiency, much more firm and durable when compared with other types.

Automotive Grade Battery

Adopting the EV MnNiCo ternary 18650 Lithium battery, heat & cold resistance. With ultra-low consumption ( $\mu\text{A}$  standard), no leak happens even when the battery has been idle for one year.

### 11.2.2 Year Warranty

High standard configuration brings high stability work performance, worry-free maintenance.

### 11.3.Intelligent Solar Controller

Controlling the state of the whole system and protect the battery from overcharge and over discharge via built-in solar controller. It can work directly when connected to the solar panel, which is simple and convenient to install.

### 11.4.Private Installation Bracket

Firm and durable, compatible with any brand Bullet /PTZ/ Dome cameras in the market, such as Hikvision, Dahua, Uniview, Axis etc..

### 11.5.Accept Customization

LOYALTY-SECU accepts any solar power kit customization service for Ordinary 4G camera, IP Camera, Wireless Bridge, 4G Router, PTZ Camera, 4G NVR and so on.