

CCTV Solar Power Supply System

Model: ICL-400W150AHSOLAR(V2)



Overview

ICL-400W150AHSOLAR | 400W150Ah 1920Wh Solar Power System

The ICL-400W150AHSOLAR 400W Solar Power System is equipped with a 150Ah (1920Wh) LiFePO₄ battery and an integrated IP65-rated outdoor enclosure, providing reliable and stable off-grid power for outdoor surveillance and remote monitoring applications.

The weatherproof distribution box houses the MPPT solar charge controller and LiFePO₄ battery system, ensuring safe operation, efficient solar charging, and long-term durability in harsh outdoor environments.

Designed for easy installation and dependable performance, the system is ideal for powering CCTV cameras, 4G routers, wireless communication devices, and other off-grid equipment in areas without utility power access.

Features

1. Solar-Powered & Plug-and-Play – No external power required; install anywhere with stable, reliable output.
2. MPPT Solar Controller – Advanced MPPT technology for maximum solar charging efficiency
3. Smart Energy Management – Automatically optimizes power generation and storage for maximum efficiency.
4. Durable & Safe Design – Anti-microcrack, low internal loss, high safety, and low-temperature performance.
5. IP65 Battery Protection – Fully weatherproof for outdoor installation.
6. Flexible & Easy Installation – U-shaped clamps; compatible with various poles; no drilling required.
7. High-Quality Materials – Corrosion-resistant frame, stainless steel screws, and waterproof connection cables.
8. Remote Monitoring Support – RS485 communication for easy system management.
9. Anti-Vibration Structure – Reduces impact on optical instruments and video image quality in pole/tower setups.

Specification

Model	ICL-400W150AHSOLAR (150Ah12.8V 1920Wh)
Solar System	
Batteries	Class A LiFePO4 batteries 150Ah12.8V 1920Wh
Solar Controller	40A MPPT 12V Controller
Solar Panel	2pcs* 200W Mono Solar Panel
DC Output	3pcs* DC12V Output; 3pcs* DC24V Output
Solar Panel Spec	
STC peak power	200W *2PCS
Material	High-efficiency mono-crystalline silicon cell, high-strength aluminum alloy frame
Panel materials	Super white toughened glass
Life	25years
Maximum power (Pm)	200W
Photoelectric Conversion Efficiency (%)	≥20.4%
Voltage at Pmax (Vmp)	18V
Current at Pmax (Imp)	10.96A
Open-Circuit Voltage of Solar Panel (V)	22.0V
Short circuit current - ISC (A)	11.62A
Module dimensions (L×W×H)	1480*670*30mm
Module weight (KG)	11 Kg*2PCS
Frame material and dimensions (mm)	Anodized aluminum alloy 1.2mm
Module packaging	Tempered glass/EVA/cell/EVA backsheet
Solar Controller Spec	
Max. Charging Current	40A
System Voltage	12/24V Auto Recognition
MPPT Charging Voltage	<14.5V/29V @25°C
Boost Charging Voltage	14.0–14.8V / 28.0–29.6V @ 25°C (Default: 14.5V / 29V)
Equalization Charging Voltage	14.0–15.0V / 28.0–30.0V @ 25°C (Default: 14.8V / 29.6V) (Liquid, AGM)
Float Charging Voltage	13.0–14.5V / 26.0–29.0V @ 25°C (Default: 13.7V / 27.4V)
Battery Low-Voltage Protection	10.8–11.8V / 21.6–23.6V (Default: 11.2V / 22.4V)
Low-Voltage Protection Recovery	11.4–12.8V / 22.8–25.6V (Default: 12.0V / 24.0V)
Battery High-Voltage Protection	15.8V / 31.3V
Max. Allowable Battery Terminal Voltage	35V
Temperature Compensation Coefficient	-4.17mV/K per cell (Boost/Equalization); -3.33mV/K per cell (Float)
Over-Voltage Protection	10.0–32.0V (Lithium Battery, Default: 14.4V)
Over-Voltage Recovery	9.2–31.8V (Lithium Battery, Default: 14.0V)

Battery Low-Voltage Protection	9.0–30.0V (Lithium Battery, Default: 10.6V)
Low-Voltage Protection Recovery	9.6–31.0V (Lithium Battery, Default: 12.0V)
Battery Type	Gel, AGM, Liquid, Lithium (Default: Gel)
Max. PV Open-Circuit Voltage	100V (-20°C), 90V (25°C) * ¹
Max. PV Input Power	520W / 1040W
Night/Dusk Recognition Voltage	3.0–10.0V / 6.0–20.0V (Default: 8.0V / 16.0V)
MPPT Tracking Range	(Battery Voltage + 2.0V) ~ Voc × 0.9 * ²
Load Output Current	30A
Operating Modes	General Controller (Default), Streetlight Mode, User Manual Mode
Max. MPPT Tracking Efficiency	>99.9%
Max. Charging Conversion Efficiency	98.00%
Dimensions	196.5 × 136.4 × 67.1 mm
Net Weight	1.3kg
Self-Consumption	≤14mA
Communication	RS485 (RJ11 Port)
Grounding Type	Negative Grounding
Wiring Terminal	6 AWG (16mm ²)
Operating Temperature	-20 to +45°C
Operating Humidity	≤95% RH, Non-condensing
Storage Temperature	-25 to +70°C
Protection Rating	IP32

*¹ This value represents the maximum allowable open-circuit voltage of the PV input at the minimum ambient temperature.

*² Voc refers to the open-circuit voltage of the solar panel.

*³ The values before and after the slash apply to 12V and 24V systems, respectively.

Battery Spec	
Battery Capacity	12.8V/150AH (1920WH) LiFePO4 battery
Rated Capacity	150Ah
Rated Voltage	12.8V
Maximum Charging Voltage	14.6 ± 0.2V
Discharge Cut-off Voltage	10 ± 0.2V
Standard Charging Current	15A
Standard Discharging Current	15A
Maximum Continuous Charging Current	30A
Maximum Continuous Discharging Current	30A
Maximum Peak Discharging Current	90A
Cycle Life	>2000 cycles
Weight	≤ 12kg

Operating Temperature	Charging: 0°C ~ 55°C; Discharging: -10°C ~ 60°C
Outdoor Cabinet Spec (IB542)	
Dimensions (length x width x height)	500*450*300mm
Weight (kg)	16.5
Material	Cold-Rolled Steel with Electrostatic Powder Coating
Thickness	1.2mm
IP Level	IP65
Color	White + Gray
Door	1
FAN	(Optional)
IP Camera/AP/CPE Mounting Plate	4PCS
Key	1PCS
Grounding Connector	1PCS
All-in-One Package	
Size and Weight	Battery Cabinet Size: 460*310*535MM; 29.50KG 200W Solar Panel Size: 1520*710*65MM; 11.00KG Solar Bracket: 580*700*55MM; 10.00KG Channel Bracket: 2015*50*50MM; 5.50KG
Weight (Include brackets and accessories)	66KG
Content	2* Solar Panel 1* Cabinet (Inside with battery) with DC output connectors (with 2 * Battery Cabinet Pole mount kit, 1* Screws pack, 1* QIG) 2* Solar Panel Bracket 1* C-Channel Bracket
Certificate	CE, MSDS, UN38.3, DGM, Sea Transportation Certificate

Widely Used Applications

The Solar Power Supply system is widely used in various outdoor surveillance and communication applications, including:

1. CCTV surveillance systems
2. Solar-powered security and monitoring systems
3. 4G/5G wireless routers and communication devices
4. Remote and off-grid monitoring stations
5. Road and traffic surveillance projects
6. Construction site security systems
7. Farms, plantations, and agricultural monitoring
8. Industrial and perimeter security applications
9. Smart city and infrastructure projects