

Introduction

This is a MPPT (maximum Power Point Tracking) smart solar controller, with charging and discharging function, increasing 30%~60% efficiency than traditional PWM controller. It has automatic recognition function, three Stages charging function, also supports many kinds of battery charging and discharging, RS232 communication etc, It's our company's MPPT solar controller e-SMART series.

Features

1. MPPT charging mode, peak efficiency up to 99%, saving 30%~60% solar panel than traditional PWM controller.
2. DC12V/24V/48V battery system automatic recognition, users would like to use in different system conveniently.
3. DC12V/24V/48V system, maximum PV input voltage up to DC100V.
4. Charge type: three stages charge fast charge(MPPT), constant voltage, floating charge, protected our battery, lead to a long use age.
5. Discharge type owns always on pattern and always off pattern, it also has PV voltage solar controlling switch pattern.
6. Clients can auto select any one in the 4 kinds of commonly used batteries, Sealed lead acid, vented, Gel, NiCd and custom other batteries.
7. Digital tube display controller battery voltage and charging current, upper computer display various parameters, such as model, PV input voltage, battery types, battery voltage, charging current, charging power, working condition etc.
8. RS232 communication, and that providing communication protocol, it's convenient for customer's integration management.
9. This controller could be paralleled infinitely.
10. CE, RoHS Certifications approved; cooperating with clients through the other certifications.
11. 2 years warranty; 3~10 years extended technical service.

Products photos







Parameters

MPPT solar controller modes I-P-e-SMART-12V/24V/48V-series		30A
Charge mode	MPPT(maximum power point tracking)	
Charge method	Three stages: constant current(MPPT),constant voltage,floating charge	
System type	DC12V/24V/48V	Automatic recognition
System voltage	12V system	DC9V~DC15V
	24V system	DC18V~DC30V
	48V system	DC36V~DC60V
Soft start time	12V/24V/48V system	≤3S
Dynamic response recovery and range	12V/24V/48V system	500us
MPPT efficiency	12V/24V/48V system	≥96.5%,≤99%
INPUT CHARACTERISTICS		
MPPT working voltage and Range	12V system	DC14V~DC100V
	24V system	DC30~DC100V
	48V system	DC60~DC100V
Low voltage input Protection point	12V system	DC14V
	24V system	DC30V
	48V system	DC60V

Low voltage input Recovery point	12V system	DC18V
	24V system	DC34V
	48V system	DC65V
Input over voltage protection point	12V/24V/48V system	DC110V
Input over voltage recovery point	12V/24V/48V system	DC100V
Maximum PV power	12V system (W)	426
	24V system (W)	852
	48V system (W)	1704

CHARGE CHRECTRESTICS

Selectable Battery Types (Default type is GEL battery)	12V/24V/48V system	Sealed lead acid, vented, Gel, NiCd battery (Other types of the batteries also can be defined)□
Constant Voltage	12V/24V/48V system	Please check the charge voltage according to the battery type form.
Floating Charge Voltage	12V/24V/48V system	Please check the charge voltage according to the battery type form.
Rated Input Current	12V/24V/48V system	30A
Current-limiting Protection	12V/24V/48V system	35A
Temperature Factor	12V/24V/48V system	±0.02%/°C
Temperature Compensation	12V/24V/48V system	14.2V-(The highest temperature-25°C)*0.3
Output Ripples(peak)	12V/24V/48V system	200mV
Output Voltage Stability Precision	12V/24V/48V system	≤±1.5%

Output Discharge Characteristics

Output voltage	Base on battery voltage
Low voltage output Protection point	Default 10.5V; recovery 11V; custom available ;
Rated output Current	30A
The output control	Always on, always off, PV voltage control switch
Output control set mode	Controller button or upper computer
Display	
LED digital tube display	Battery voltage, charge current
LED light display	Charging indicator light, LOAD indicator light
PC□communication port□	RS232

Protection

Input Low Voltage Protection	Check the input characteristics
Input Overvoltage Protection	Check the input characteristics
Charge over voltage power Protection	yes
Low Voltage output Protection	yes
Rated output Current protection	yes

Temperature Protection	yes	
Other Parameters		
Noise	≤40dB	
Thermal heat-dissipating method	Itself cooling	fan cooling
Components	Imported material, with EU standards.	
Certification	CE\FCC\ROHS	
Physical		
Measurement D x W x H(mm)	205*168*60	
package size D x W x H(mm)	265*196*110	
N.G(KG)	1.8kg	
G.N(KG)	2kg	
Type of Mechanical Protection	IP25	
Environment		
Humidity	0~90%RH (no condense)	
Altitude	0~3000m	
Operating Temperature	-20℃ ~ +50℃	
Storage Temperature	-40℃ ~ +75℃	
Atmospheric Pressure	70~106kPa	

Connection diagram

The diagram illustrates a complete solar power system setup. Key components and their connections are as follows:

- Solar Panel:** The primary power source, connected to a **Breaker**.
- Mppt Solar Controller:** Receives power from the solar panel and manages the charging of the battery. It features a **DC Output** connected to a light bulb through a **Breaker**.
- Battery Box:** Stores energy from the solar panel. It is connected to the controller and the inverter through **Breakers**. A **Temp. sensor** is attached to monitor the battery's temperature.
- Solar Inverter:** Converts the DC power from the battery into AC power for household use.
- AC Output:** Powers various appliances, including a washing machine, dryer, and refrigerator.
- PC:** A computer system connected to the controller via an **RS232** cable for monitoring and data logging.

The screenshot displays the SolarEagle software interface, which is used for monitoring and configuring solar power systems. The interface is divided into several sections:

- Top Menu Bar:** Includes options for System(S), Control(C), Statistics(T), Language(L), and Help(H).
- Top Toolbar:** Contains icons for various functions such as adding a device, monitoring, and settings.
- Left Panel:** Labeled "Devices", it shows a list of connected devices. In this case, it lists "Guest" and "Monitored device: ---".
- Main Configuration Area:**
 - Overview Tab:** Shows a schematic diagram of a solar system. It includes solar panels connected to a DC-DC converter, which is then connected to a battery and a light bulb (load).
 - Parameters setting Tab:** Allows for configuring the system parameters. It includes fields for:
 - Battery type: ---
 - Load type: ---
 - Main firmware version: ---
 - Model name: ---
 - Charge information Tab:** Displays real-time data for the charging process:
 - Charge voltage: 0.0 V
 - Charge power: 0.0 W
 - Charge current: 0.0 A
 - Total power: 0.0 Wh
 - Battery temperature: 0.0 °C
- Right Panel:**
 - Input information Tab:** Shows environmental data:
 - PV voltage: 0.0 V
 - Environment temperature: 0.0 °C
 - Real-time events Tab:** A table for logging events. The table has columns for ID, Level, Time, and Event. The table is currently empty.

Company photos



2014 Shanghai Exhibition

