

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



MPPT CONTROLLER

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CHARGE LOAD

ENTER ENTER

CHG VOL CHG CUR
SET TYPE OUTPUT THS





Parameters

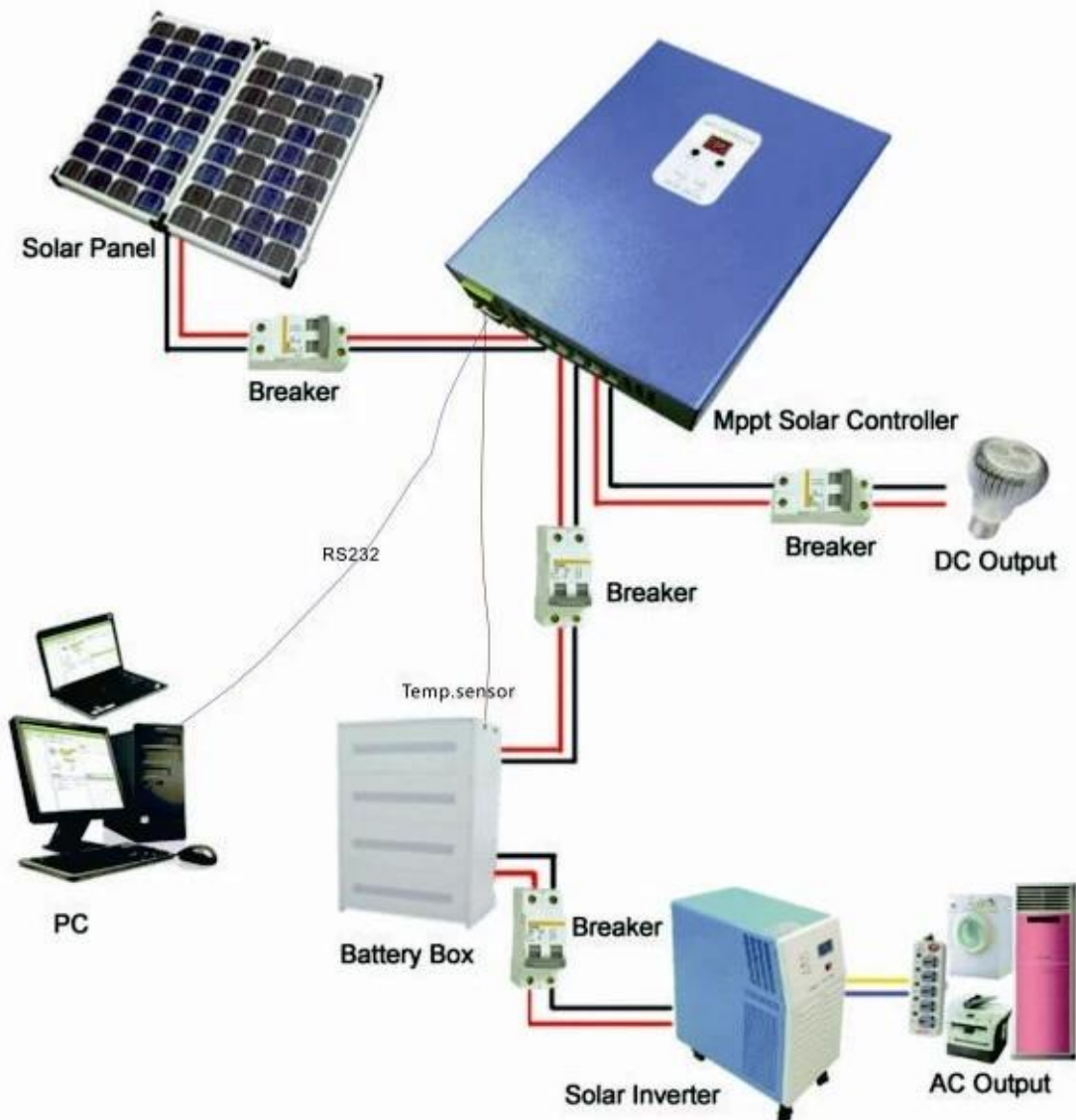
| | | |
|---|---|-----------------------|
| MPPT solar controller modes I-P-e-SMART-12V/24V/48V-series | 40A | |
| Charge mode | MPPT(maximum power point tracking) | |
| Charge method | Three stages: constant current(MPPT),constant voltage,floating charge | |
| System type | DC12V/24V/48V | Automatic 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) | 568 |
| | 24V system (W) | 1136 |
| | 48V system (W) | 2272 |
| 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 | 40A |
| Current-limiting Protection | 12V/24V/48V system | 45A |
| 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 | |

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|---------------------------------|---------------------------------------|-------------|
| 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°C ~ +50°C | |
| Storage Temperature | -40°C ~ +75°C | |
| Atmospheric Pressure | 70~106kPa | |

Connection diagram

I-P-ESmart-Swries System



Upper software

The screenshot displays the SolarEagle software interface, which is used for monitoring and controlling a solar power system. The interface is organized into several sections:

- Menu and Tools:** At the top, there is a menu bar with options: System(S), Control(C), Statistics(T), Language(L), and Help(H). Below the menu is a toolbar with various icons for system management.
- Overview Panel:** The main area features a central diagram of a solar system. It includes a PV array (represented by blue panels), a DC-DC converter (a green box labeled 'DC'), a battery (a green box with '+' and '-' terminals), and a load (represented by a lightbulb). Below the diagram, there are dropdown menus for 'Battery type: --', 'Load type: --', 'Main firmware version: --', and 'Model name: --'.
- Input information:** This section on the right provides real-time data: 'PV voltage: 0.0 V' and 'Environment temperature: 0.0 °C'.
- Charge information:** This section at the bottom left shows: 'Charge voltage: 0.0 V', 'Charge power: 0.0 W', 'Charge current: 0.0 A', 'Total power: 0.0 Wh', and 'Battery temperature: 0.0 °C'.
- Real-time events:** A table at the bottom right records system events. The table has the following structure:

| ID | Level | Time | Event |
|----|-------|------|-------|
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Company photo



Shanghai International Photovoltaic Power Generation Conference & Exhibition

