

# Introduction

This e-SMART MPPT (maximum Power Point Tracking) [solar charge controller](#) is a smart solar controller with automatic recognition function, smart charging and discharging function, three stages charging function to protect battery. It can increase 30%~60% efficiency than traditional PWM controller. It supports many kinds of batteries. It also has RS232 communication function.



## 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 choose 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.

## Protection

Input Low Voltage Protection;

Input Overvoltage Protection;

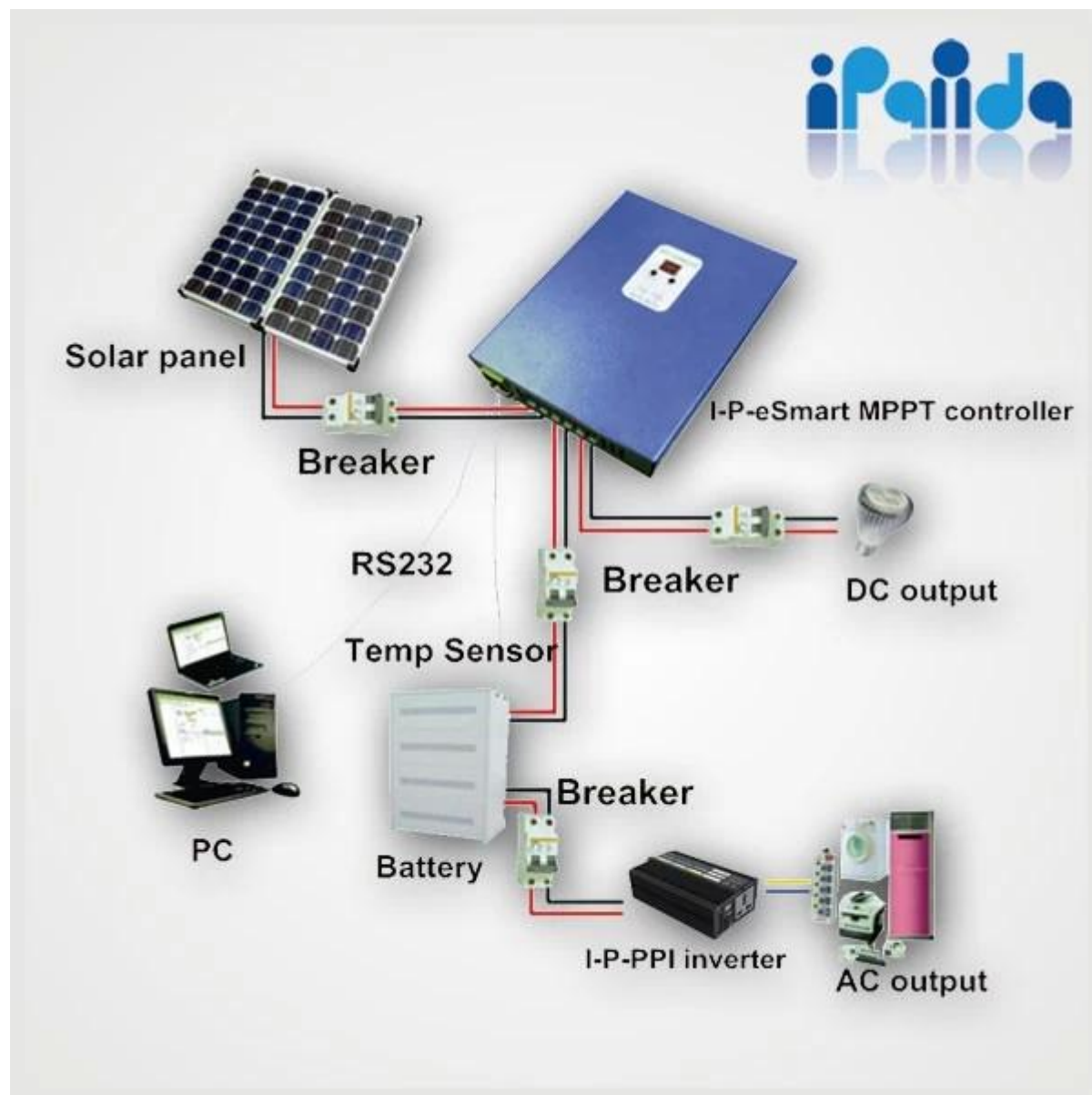
Charge over voltage power Protection;

Low Voltage output Protection;

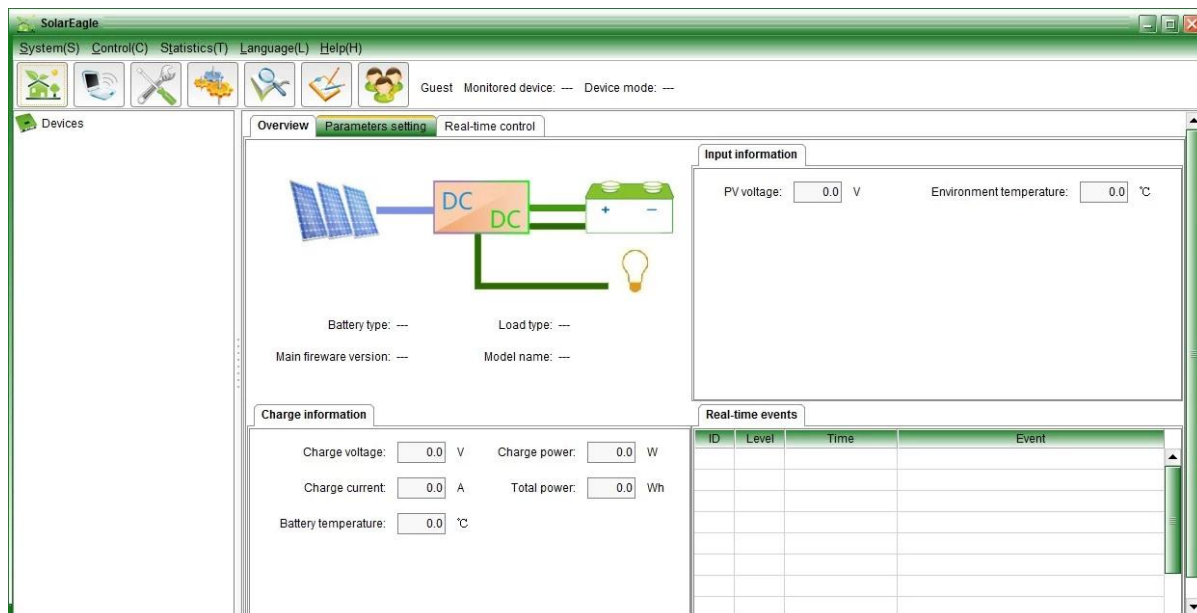
Rated output Current protection;

Temperature Protection.

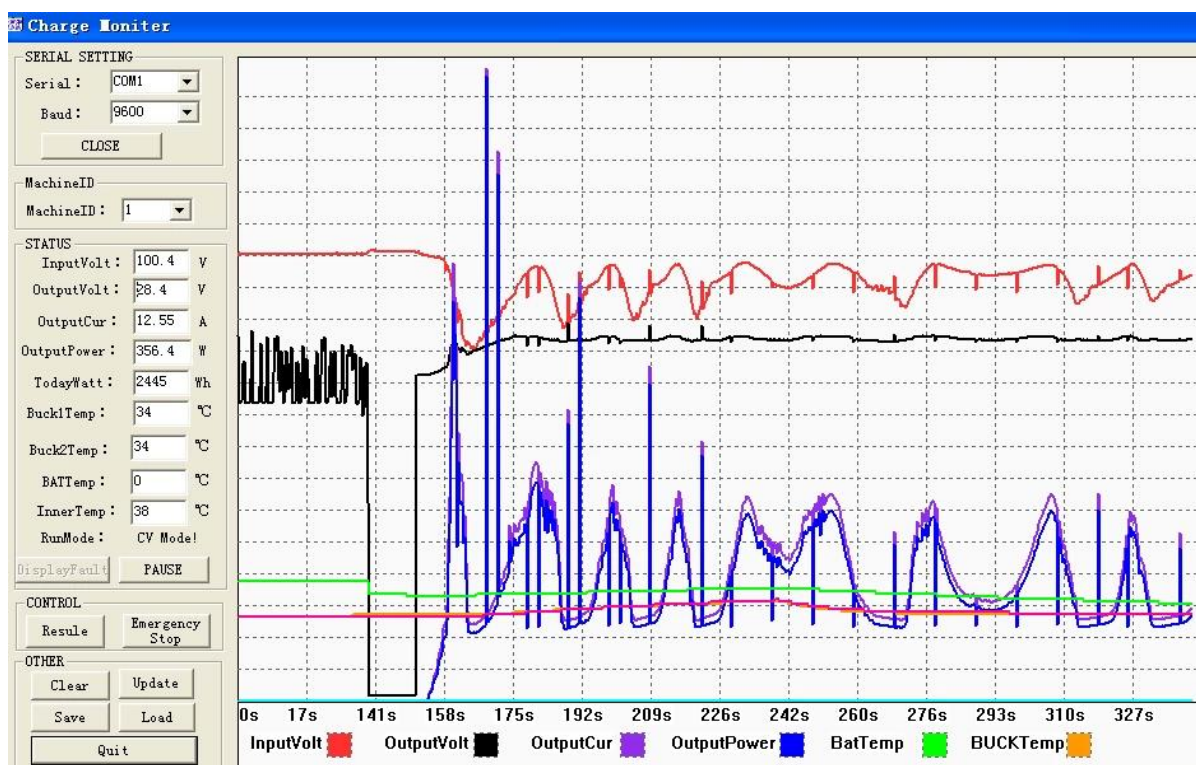
## Connection diagram



The interface of upper computer software working state



The interface of test software working state



## Parameters

| MPPT solar controller modes    |   | 25A                   | 30A | 40A |
|--------------------------------|---|-----------------------|-----|-----|
| I-P-e-SMART-12V/24V/48V-series |   |                       |     |     |
| 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 |     |     |
|                                | 12V system  | DC9V~DC15V            |     |     |
| System voltage                 | 24V system  | DC18V~DC30V           |     |     |
|                                | 48V system  | DC36V~DC60V           |     |     |
| Soft start time                | 12V/24V/48V system  | ≤3S                   |     |     |
| Dynamic response recovery time | 12V/24V/48V system  | 500us                 |     |     |
| MPPT efficiency                | 12V/24V/48V system  | ≥96.5%,≤99%           |     |     |
| INPUT CHARACTERISTICS          |   |                       |     |     |

|  |  |  |             |      |
|--|--|--|-------------|------|
| MPPT working voltage range                     | 12V system   | DC14V~DC100V   |             |      |
|  | 24V system   | DC30~DC100V  |             |      |
|  | 48V system   | DC60~DC100V  |             |      |
| Low input voltage protection point             | 12V system   | DC14V  |             |      |
|  | 24V system   | DC30V  |             |      |
|  | 48V system   | DC60V  |             |      |
| Low input voltage Recovery point               | 12V system   | DC18V  |             |      |
|  | 24V system   | DC34V  |             |      |
|  | 48V system   | DC65V  |             |      |
| High input voltage protection point            | 12V/24V/48V system                                 | DC110  |             |      |
| High input voltage recovery point              | 12V/24V/48V system                                 | DC100V   |             |      |
| Maximum PV power                               | 12V system (W)                                     | 355  | 426         | 568  |
|  | 24V system (W)                                     | 710  | 852         | 1136 |
|  | 48V system (W)                                     | 1420   | 1704        | 2272 |
| CHARGE CHRECTRESTICS                           |  |  |             |      |
| Selectable Battery Types (Default 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                                 |  |             |      |
| Rated Input Current                            | 12V/24V/48V system                                 | 25A  | 30A         | 40A  |
| Current-limit Protection                       | 12V/24V/48V system                                 | 30A  | 35A         | 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; It can be adjustable. |  |             |      |
| Rated output Current                           | 30A  |  |             |      |
| The output control                             | On mode, Off mode, PV voltage control mode         |  |             |      |
| Output control set mode                        | Controller button or PC software                   |  |             |      |
| Display  |  |  |             |      |
| LED digital tube display                       | Battery voltage, Charge current                    |  |             |      |
| LED light display                              | Charging indicator light, LOAD indicator light     |  |             |      |
| PC[]communication port[]                       | RS232  |  |             |      |
| Protection                                     |  |  |             |      |
| Low input voltage protection                   | Check the input characteristics                    |  |             |      |
| High input voltage protection                  | Check the input characteristics                    |  |             |      |
| Charge overpower protection                    | yes  |  |             |      |
| Discharge low voltage protection               | yes  |  |             |      |
| Discharge high 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  |  |             |      |
| 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  |  |             |      |

## Packing and shipping



## Certificate





shipping way



Company







