

## 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. Remarks: DC12V/24V/48V battery system automatic recognised

## 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.

## Parameters:

MPPT solar controller modes I-P-e-SMART-12V/24V/48V-series		15A	20A	25A	30A	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 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)	213	284	355	426	568
	24V system (W)	426	568	710	852	1136
	48V system (W)	852	1136	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	15A	20A	25A	30A	40A
Current-limit Protection	12V/24V/48V system	20A	25A	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%				

#### Remarks□

The specification is only for reference. Subject to change without prior notice

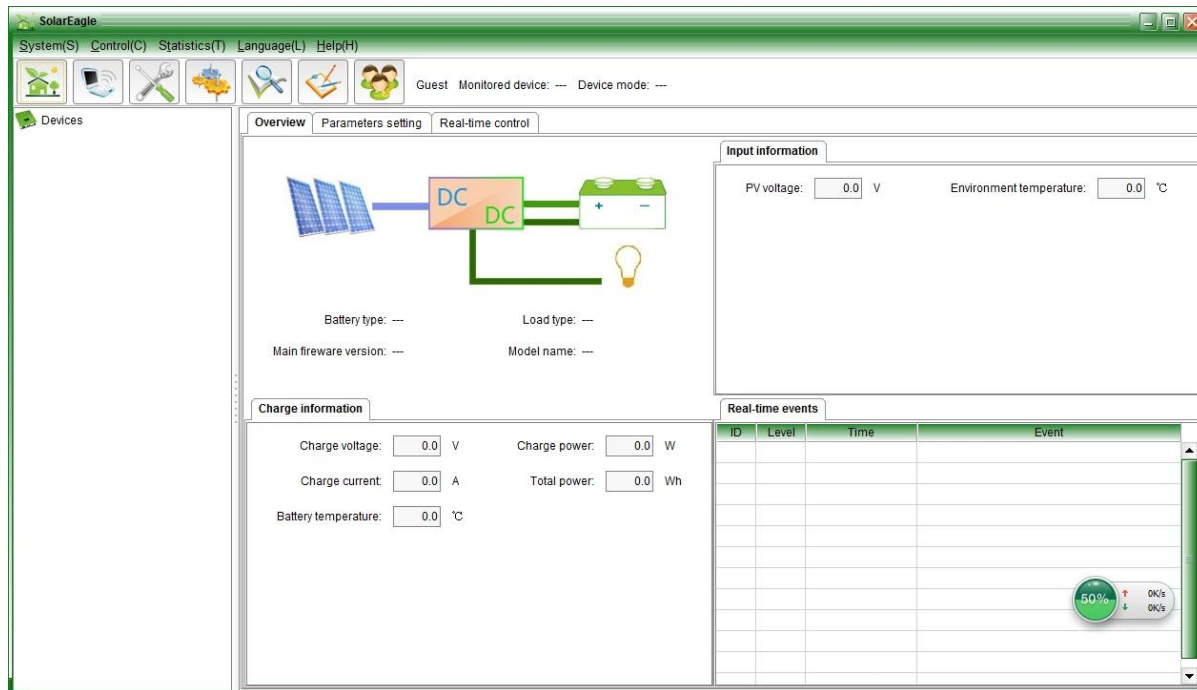
We provide OEM and ODM service. The 36V/72V/96V model also can be custom made for you.

#### Products Package□

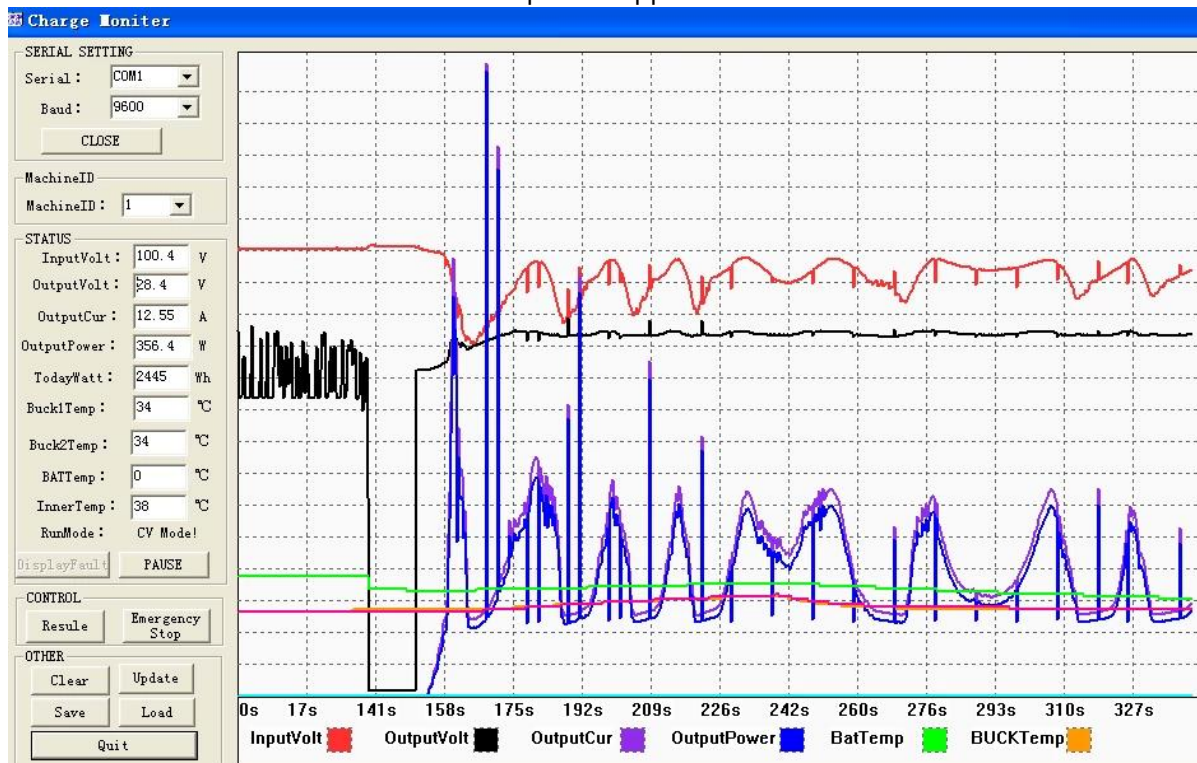
Number	quantity	parets name
1	1 pc	Controller appearance(blue or green is optional□OEM is available also)
2	2 pc	hangers□Used in the controller hanging□
3	4 set	screw□Used for hanging ear lock in the controller□
4	1 pc	RS232 port
5	1 pc	Battery temperature sensing lines
6	2 pc	fuse□DC output□
7	1 pc	specification□manual□
8	1 pc	CD□Built-in upper software□

Controller upper software testing software display information and set parameters.

1.Upper software and test software display information and set parameters.



Graphical: upper software



Graphical: testing ware

1.1 show solar charge and discharge status, PV voltage, charge voltage, charge Current etc, and setting the type of the batteries, LOAD output control method.

1.2 Product standard upper software; testing software is not provided(Due to testing software need clients' PC has software development platform, if clients have the requests, please apply to our company for taking)

Remarks: the PC software is offered freely by our company.

2. Information display and parameter setting.



e-Smart series

2.1 ENTER1 button: press left ENTER1 show 2 digital battery voltage (if it is charging, then shows 2 digital charge voltage), for example, the battery voltage or charge voltage is 13.5V, it shows 13.

Press ENTER1 for a long time, you can set battery types; more informations please see the specification.

2.2 ENTER2 button: press right ENTER2 show 2 digital battery current (if it has n't been charging, then display 00, if the charge current is 20.5A, then it shows 25; press ENTER2, you can set always on and always off pattern, you can see more details in the specification.

Other detailed parameters

Please see the outline of the design, technical documents, product manuals etc.

Engineering department custom 2th version on May 5, 2014.







**MAINTENANCE CARD**

Name \_\_\_\_\_ Tel \_\_\_\_\_

Address \_\_\_\_\_

Brand \_\_\_\_\_ Model \_\_\_\_\_ Serial No. \_\_\_\_\_

Bought From \_\_\_\_\_ Date Purchased \_\_\_\_\_

Invoice Number \_\_\_\_\_ Invoice Price \_\_\_\_\_

Conditions of warranty:  
1. The above warranty is guaranteed under normal use for two years from date of purchase. During the period, we will repair or replace any defective parts, free of charge, any damaged parts, defects caused by accident, negligence, misuse, transportation, normal wear, accident, or any alteration that affects the usability or performance of the equipment will not be covered by the warranty.  
2. The warranty does not cover consumable parts and accessories in addition, for example, the warranty period, as well as the cost of any service and service will be provided to the product owner in accordance with the warranty of the equipment will be allowed.  
3. Please keep your invoice and product with this warranty card for maintenance service.

Issued By \_\_\_\_\_

**CERTIFICATE**

Model: \_\_\_\_\_

Specifications: \_\_\_\_\_

Inspector: \_\_\_\_\_

Date: \_\_\_\_\_

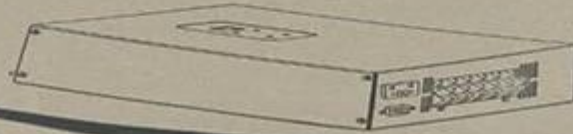
Products have been tested, qualified by standard and permitted to deliver.





## MPPT Solar Charge Controller

Adopting Advanced MPPT Technology  
High Conversion Efficiency  
Rs232 Port



CEFC®

**HIGH-END QUALITY**  
SOLAR CHARGE CONTROLLER

CEFC®