

# MPPT Solar Charge Controller

Adopting Advanced MPPT Technology  
High Conversion Efficiency

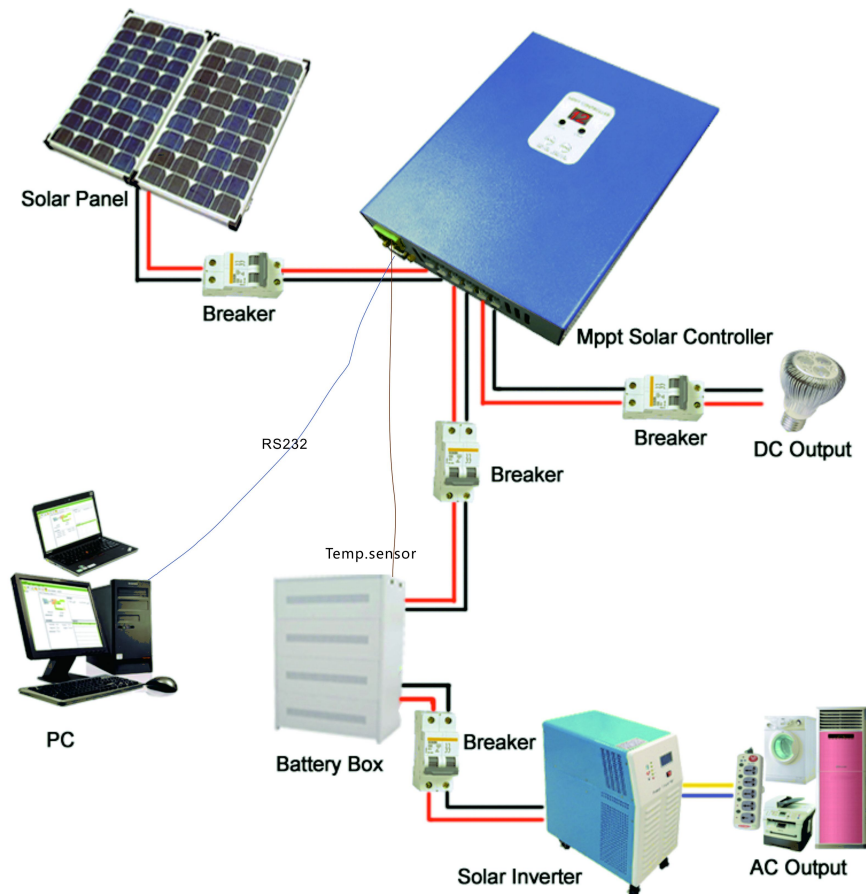


*12V/24V/48V system auto recognition*



### ● 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 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.

● 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 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	DC110				
Input over 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 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					
Rated Input Current	12V/24V/48V system	15A	20A	25A	30A	40A
Current-limiting Protection	12V/24V/48V system	20A	25A	30A	35A	45A
Temperature Factor	12V/24V/48V system	±0.02%/℃				
Temperature Compensation	12V/24V/48V system	14.2V-(The highest temperature-25℃)*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	

**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 )



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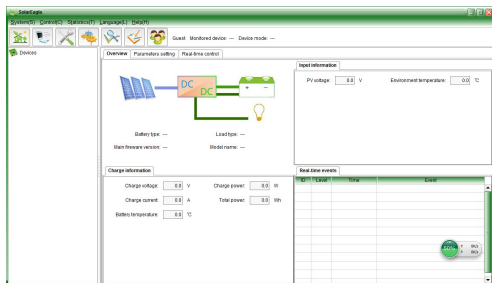
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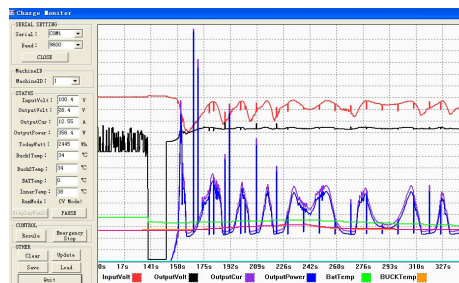
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- Controller upper software testing software display information and set parameters.

#### 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 shows13.

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 aways 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.