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 have RS232 communication function.

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 can use it in different system conveniently.
3. Maximum PV input voltage up to DC100V.
4. Three stages charge: fast charge(MPPT), constant voltage charge,floating charge, It can protect batteries well .
5. Three option of discharge: on mode and off mode and PV voltage(solar) control mode.
6. Users can choose 4 kinds of commonly standard batteries(Sealed lead acid, Vented, Gel, NiCd). Other kinds of batteries can be defined by users.
7. Digital tube can display battery voltage and charging current. The software can display various parameters such as model number, PV input voltage, battery type, battery voltage, charging current, charging power, working condition.
8. RS232 communication, we can offer communication protocol also, it's convenient for user's integration management.
9. This controller can be paralleled infinitely.
10. CE and RoHS Certifications are approved.We can help clients to approve 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		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)	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%/℃		
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; 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℃ ~ +50℃
Storage Temperature	-40℃ ~ +75℃
Atmospheric Pressure	70~106kPa

Remarks：

The specification is only for reference. Subject to change without prior notice
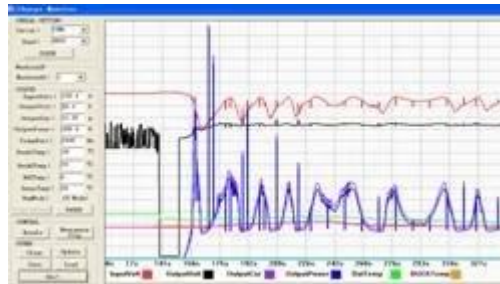We provide OEM and ODM service. The 36V/72V/96V model also can be customized for you.

Products Package:

Number	quantity	Items included
1	1 pc	Controller color (blue or green is optional OEM ODM order is highly welcome)
2	2 pc	Hangers (used for controller hanging on the wall)
3	4 set	Screw
4	1 pc	RJ45 to RS232 cable
5	1 pc	Battery temperature sensor wire
6	2 pc	Fuse（DC output）
7	1 pc	User instruction（manual）
8	1 pc	CD

Controller PC upper software and testing software can display information. Users can set parameters via PC upper software.

Graphical: PC upper software   Graphical: testing software

1.1 The first picture show solar controller working status(charge and discharge), PV voltage, charge voltage, charge current etc. Users can choose the type of the batteries, DC-load output control method.
1.2 We provide PC upper software. Testing software is not including. (user's PC has software development platform, if needed, please apply for it)

2. Information display and parameter setting.

Figure 2.1   Figure 2.2

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,please see Figure 2.1;Press ENTER1 a little bit longer, users can set battery types.
2.2 ENTER2 button: press right ENTER2 show 2 digital battery current (if it is not charging, then it display 00, if the charge current is 22.5A, then it shows 22,please see Figure 2.2); press ENTER2 button a little bit longer, DC load control can be set (On mode, Off mode, PV voltage control mode)
Please see more details in the user manual.

Other detailed parameters:
Please see the outline of the design, technical documents, user manuals etc.
Research and development department made 2th version on May 5, 2014.