### Introduction

This e-SMART <u>MPPT (maximum Power Point Tracking) solar charge controller</u> 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 <u>RS232 communication</u> 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 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. <u>CE and RoHS Certifications</u> 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		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~DC	15V					
	24V system	DC18V~D	C30V					
	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%,≤9	99%					
INPUT CHARACTERIST	TICS							
MPPT working voltage range	12V system	DC14V~D	C100V					
	24V system	DC30~DC	100V					
	48V system	DC60~DC	100V					
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						

	12V system (W)	213	284	355	426	568		
Maximum PV power	24V system (W)	426	568	710	852	1136		
-	48V system (W)	852	1136	1420	1704	2272		
CHARGE CHRECTREST	TICS							
electable Battery Types 12V/24V/48V system Default Gel attery)		Sealed lead acid, Vented, Gel, NiCd battery (Other types of the batteries also can be defined)[]						
Constant Voltage	12V/24V/48V system							
Floating Charge Voltage	12V/24V/48V system	Please check the charge voltage according to the battery type for				ry type form.		
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	2					
Temperature Compensation	nperature 12W/24W/48V system		14.2V-(The highest temperature-25°C)*0.3					
Output Ripples(peak)	12V/24V/48V system	200mV						
Putput Voltage Stability recision		≤±1.5%						
Output Discharge Chara	acteristics	-						
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	9	Controller	button or PC so	ftware				
<mark>Display</mark> LED digital tube display	r	Battory vo	ltago Chargo cu	irrent				
LED light display	Battery voltage, Charge current Charging indicator light, LOAD indicator light							
PC]communication port		RS232						
Protection								
Low input voltage prote		Check the input characteristics						
High input voltage prote	Check the input characteristics							
Charge overpower prote	yes							
Discharge low voltage p		yes						
Discharge high current Temperature protection	yes							
Other Parameters		yes						
Noise		≤40dB						
Thermal heat-dissipatin	Itself cooling Fan cooling							
Components	Imported material With EU standards.							
Certification	CE\FCC\RoHS							
Physical		0.0 = 14 = = =	20					
Measurement D x W x H	205*168*60 265*196*110							
package size D x W x H( N.G(KG)	265*196*110 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						

# 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

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.
We provide <u>PC upper software</u>. Testing software is not including. (user's PC has software development platform, if needed, please apply for it)



Information display and parameter setting

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. 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.



## Applications



