## High Conversion Efficiency Wide Range Input Voltage DC12V/24V/48V Syatem Automatic Identification

I-P- SMART1-DC12V/24V/48V-40A MPPT Solar chargeController. With MPPT, it can target the highest output possibe from PV panels,make efficiency higher upto 30%~60% than traditional PWM ones. It can storeenergy to different kinds of batteries(Gel,Vented, Sealed, NiCd etc.). For all ofour products has passed CE, ROHS, FCC etc.Unlimited connect in parallel.



## **Features**

- 1. Peak efficiency upto 99% with MPPT,increasing 30%~60% efficiency than traditional controller.
- 2. 12v/24v/48v system voltage automatic recognize.
- 3. Max. input PV voltage upto DC150V.
- 4. 105degrees can be sufferred by good components.
- 5. Charge mode: three stages (fast charge, constant charge, floating charge)
- 6. Support kinds of batteries:Gel,Sealed leadacid,vented,NiCd,etc.
- 7. LCD and LEDs show parameters and systeminformation, like PV input voltage, battery voltage, charge current, chargepower, etc.
- 8. Port RS232 or connects to PC with uppersoftware to show working state and parameters in 11 languages.
- 9. CE, RoHS, FCC certifications approved.
- 10. 2 years warranty;3~10 years extended technical service.

## **Parameter**

Model:I-P-SMART1-DC12V/24V/48V-series		40A		
Charge Mode	Maximum Power Point Tracking			
Method	3 stages: fast charge(MPPT),constant voltage,floating charge			
System Type	DC12V	//24V/48V	Automatic recognition	

Dynamic Response   LZV/24V/48Vysyste   296.5%,s.99%   296.00us   296.5%,s.99%   296.00us   296.5%,s.99%   296.00us   296.5%,s.99%   296.00us   296.5%,s.99%   296.00us   296.5%,s.99%   296.00us   296		12V system	DC0VDC15V	
Soft Start Time  12V24V48Vsystem Poynamic Response 12V24V48Vsystem 12V24V48Vsystem 12V24V48Vsystem Power Start Sta	System Voltage			
12V/24V/84Vyster   12V/24V/84Vyster   290.5	System voltage			
Dynamic Response Recovery Time  Conversion Efficiency  MPV Modules Utilization Rate  mput Characteristics  MPPT Working Voltage and Range  Away system  DC18V-DC150V  Away system  DC18V-DC150V  Away system  DC3W-DC150V  DC3W-DC150V  DC4W system  DC3W-DC150V  DC5W-DC150V  DC4W system  DC18V-DC150V  DC4W system  DC18V-DC150V  DC5W-DC150V  DC4W system  DC18V-DC150V  DC5W-DC150V  DC4W-DC150V  DC5W-DC150V  DC5W	Soft Start Time	12V/24V/48Vsyste		
2.72/24/48/Vsystem   2.99.5.%, ≤99%   2.99.5.%   2.9	Dynamic Response Recovery Time	12V/24V/48Vsyste	500us	
PV Modules Utilization Rate   12/V24V/48Vsystem   0.18V-DC150V	Conversion Efficiency	12V/24V/48Vsyste	≥96.5%,≤99%	
Injust Characteristics	PV Modules Utilization Rate	12V/24V/48Vsyste	≥99%	
12V system   0.218V-DCL50V   24V system   0.234-DCL50V   24V system   0.234-DCL50V   24V system   0.265-DCL50V   24V system   0.266-DCL50V   24V system   0.266-DCL50V   24V system   0.260V   24V s	Input Characteristics	111		
Low Voltage Input Protection Point  ABV system		12V system	DC18V~DC150V	
12V system	MPPT Working Voltage and Range	24V system	DC34~DC150V	
Low Voltage Input Protection Point  ABY System  JEV System  JEZY SYSTE				
ABV system   DCG0V	Law Valle va law t Dooks at law Daint			
Low Voltage Input Recovery Point    12V system   DC.22V	Low Voltage Input Protection Point			
AN Protection   AN Protection   AN AN Protection   AN AN AN Protection   AN				
Max DC Voltage	Low Voltage Input Recovery Point			
Max DC Voltage   12V/24V/48V   system   DC160V				
Input Overvoltage Protection Point Input Overvoltage Recovery Point Input Overvoltage Protection Input Overvoltage Recovery Point Input Overvoltage Input Overvoltage Input Overvoltage Input Constant Voltage Input Overvoltage Protection In	May DC Voltage	12V/24V/48V		
Input Overvoltage Protection Point Input Overvoltage Recovery Input Overvoltage Input Overvoltage Recover Input Characteristics Input Overvoltage Protection Input Parameters Input Overvoltage Protection Input Polarity Reversal Protection Input Polarity Reversal Protection Input Overvoltage Protec	Max DC Voltage		DC100A	
Input Overvoltage Recovery Point Input Overvoltage Stability Precision Input Overvoltage Recovery Point Input Overvoltage Recovery Point Input Overvoltage Stability Precision Input Overvoltage Stability Reversal Protection Input Overvoltage Recovery Point Input Overvoltage Stability Reversal Protection Input Overvoltage Recovery Point Input Overvoltage Protection Input Overvoltage Protection Input Overvoltage Protection Input Polarity Reversal Protection Input Polarity Reversal Protection Interperature Protection Interperature Protection Interperature Protection Interperature Protection Interperature Protection Input Polarity Reversal Protection Input Polarity Reversal Protection Interperature P	Input Overvoltage Protection Point		DC150V	
Input Overvoirage Recovery Point  Max. PV Power    24V system   570W     24V system   2270W     24W system   22W     24W system   22W     24W system   22W     24W system   29.2W     2				
12V system   570W	Input Overvoltage Recovery Point		DC145V	
ABX. PV Power   24V system   1130W   48V system   2270W   2		+*	570W	
Output Characteristics Selectable Battery Types (Default type is GEL lavy24V/48V system m lavy24V/48V system m lavy24V/48V system lavy24V/48V lavy24V/48V system lavy24V/48V lavy24V/48V system lavy24V/48V lavy24V/	Max. PV Power		1130W	
Dutput Characteristics   Seelectable Battery Types (Default type is GEL   12V/24V/48V   Seelectable Battery Types (Default type is GEL   12V/24V/48V   Seelectable Battery Types (Default type is GEL   12V/24V/48V   System   System   Please check the charge voltage according to the battery types of the batteries also can be defined)   District of the battery types of the batteries also can be defined				
Dattery   m	Output Characteristics			
Please check the charge voltage according to the battery ty form.	Selectable Battery Types (Default type is GEL battery)	m		
12V system   12V system   29.2V   29	Constant Voltage	system	Please check the charge voltage according to the battery type	
Over Charge Protection Voltage    24V system   29.2V   48V system   58.4V   58.4V   69.4V   69	Floating Charge Voltage	system		
Rated Output Current    12V/24V/48V   system				
Rated Output Current    12V/24V/48V   system   44A	Over Charge Protection Voltage			
Current-limiting Protection    12V/24V/48V   system   sys				
Temperature Factor  Temperature Factor  Temperature Compensation  12V/24V/48V system  12V/24V/48V system  14.2V-(The highest temperature-25°C)*0.3  200mV system  12V/24V/48V system  0utput Ripples(peak)  200mV  200mV  200mV  201mUput Voltage Stability Precision  12V/24V/48V system  14.2V-(The highest temperature Factoro.  12V/24V/48V system  14.2V-(The highest temperature Protection  12V/24V/48V system  14.2V-(The highest temperature Protection on Vs.2V-(check the LeD display)  14.2V-(The highest temperature Protection on Vs.2V-(check the liput characteristics on Vs.2V-(check the LeD display)  12V/24V/48V system  14.2V-(The highest temp	Rated Output Current		40A	
Temperature Factor    12V/24V/48V   system   ±0.02%/°C     12V/24V/48V   system   ±0.02%/°C     12V/24V/48V   system   ±0.02%/°C     12V/24V/48V   system   ±0.00%/°C     12V/24V/48V   system   ±1.5%     12V/24V/48V   system	C			
System   Emperature Pactor   System   12V/24V/48V   System   12V/24V/48V   System   12V/24V/48V   System   200mV   200mV   System   System   200mV   System   Syste	Current-limiting Protection	system	44A	
Temperature Compensation    12V/24V/48V   system   12V/24V/48V   200mV	Temperature Factor		±0.02%/°C	
Output Ripples(peak)  Output Voltage Stability Precision  Display  LCD display  LCD display  LCD display  LCD display  LED display  LED display  Software Control through PC(communication port)  Protection  Input Low Voltage Protection  Input Overvoltage Protection  Output Polarity Reversal Protection  Output Overvoltage Protection  Output Overvoltage Protection  Output Polarity Reversal Protection  Output Polarity Reversal Protection  Short-circuit Protection  Temperature Protection  Temperature Protection  Temperature protection  Other Parameters  200mV  ≥±1.5%  Short-circuit Protection input, output parameter and output power etc (check the LCD display instruction)  3 LEDs indicates:Fault indicate light, charge indicate light, power source indicate light, charge indicate light, power source indicate light (check the LED instruction)  R5232 (matching) or LAN(optional)  Protection  Check the input characteristics  Input Polarity Reversal Protection  Check the input characteristics  Output Polarity Reversal Protection  Pes  Short-circuit Protection  Recover after eliminating the Short-circuit fault, no problem long term Short-circuit  Temperature protection  Other Parameters	Temperature Compensation	12V/24V/48V	14.2V-(The highest temperature-25°C)*0.3	
Output Voltage Stability Precision  Display  LCD display  LED display  LED display  LED display  Control through PC(communication port)  Input Court overvoltage Protection  Input Overvoltage Protection  Output Overvoltage Protection  Output Polarity Reversal Protection  Short-circuit Protection  Temperature Protection  Temperature Protection  Check the input characterist fault, no problem long term Short-circuit  Above 85°C, decrease the output power, decrease 3A per degree.  Other Parameters	Output Ripples(peak)	12V/24V/48V	200mV	
Display  LCD display  LCD display  LED display  Below indicates: Fault indicate light, charge indicate light, power source indicate light, check the LED instruction)  3 LEDs indicates: Fault indicate light, charge indicate light, power source indicate light (check the LED instruction)  Software Control through PC(communication port)  Protection  Input Low Voltage Protection  Input Low Voltage Protection  Check the input characteristics  Input Overvoltage Protection  Output Polarity Reversal Protection  Output Overvoltage Protection  Output Overvoltage Protection  Output Polarity Reversal Protection  Short-circuit Protection  Check the output characteristics  Output Polarity Reversal Protection  Short-circuit Protection  Temperature Protection  Other Parameters	Output Voltage Stability Precision	12V/24V/48V	≤±1.5%	
Input,output parameter and output power etc (check the LCD display instruction)  3 LEDs indicates:Fault indicate light,charge indicate light,power source indicate light(check the LED instruction)  Software Control through PC(communication port)  Protection  Input Low Voltage Protection  Input Overvoltage Protection  Check the input characteristics Input Polarity Reversal Protection  Output Overvoltage Protection  Check the output characteristics  Output Polarity Reversal Protection  Check the output characteristics  Output Polarity Reversal Protection  Short-circuit Protection  Temperature Protection  Temperature Protection  Other Parameters	Display			
A LED sindicates:Fault indicate light,charge indicate light,power source indicate light(check the LED instruction)  Software Control through PC(communication port)  Protection  Input Low Voltage Protection  Input Overvoltage Protection  Check the input characteristics Input Polarity Reversal Protection  Output Overvoltage Protection  Check the output characteristics  Output Overvoltage Protection  Check the output characteristics  Output Polarity Reversal Protection  Check the output characteristics  Output Polarity Reversal Protection  Short-circuit Protection  Check the output characteristics  Yes  Recover after eliminating the Short-circuit fault,no problem long term Short-circuit  Temperature Protection  Temperature protection  Other Parameters	LCD display			
Software Control through PC(communication port)  Protection  Input Low Voltage Protection  Input Overvoltage Protection  Check the input characteristics Input Polarity Reversal Protection  Output Overvoltage Protection  Output Overvoltage Protection  Output Polarity Reversal Protection  Output Polarity Reversal Protection  Check the output characteristics  yes  Short-circuit Protection  Recover after eliminating the Short-circuit fault,no problem long term Short-circuit  Temperature Protection  Temperature protection  Other Parameters	LED display		3 LEDs indicates:Fault indicate light,charge indicate	
Input Low Voltage Protection  Input Overvoltage Protection  Input Polarity Reversal Protection  Output Overvoltage Protection  Output Overvoltage Protection  Output Polarity Reversal Protection  Output Polarity Reversal Protection  Output Polarity Reversal Protection  Short-circuit Protection  Check the output characteristics  yes  Recover after eliminating the Short-circuit fault, no problem long term Short-circuit  Temperature Protection  Temperature protection  Other Parameters  Check the input characteristics  Above 85°C, decrease the output power, decrease 3A per degree.		t)		
Input Overvoltage Protection  Input Polarity Reversal Protection  Output Overvoltage Protection  Output Overvoltage Protection  Output Polarity Reversal Protection  Output Polarity Reversal Protection  Short-circuit Protection  Temperature Protection  Temperature protection  Other Parameters  Check the input characteristics  yes  Check the output characteristics  Pescover after eliminating the Short-circuit fault, no problem long term Short-circuit  Above 85°C, decrease the output power, decrease 3A per degree.	Protection Input Low Voltage Protection		Check the input characteristics	
Output Overvoltage Protection  Output Polarity Reversal Protection  Short-circuit Protection  Temperature Protection  Temperature protection  Other Parameters  Check the output characteristics  yes  Recover after eliminating the Short-circuit fault,no problem long term Short-circuit  95°C  Above 85°C,decrease the output power,decrease 3A per degree.	Input Overvoltage Protection			
Output Polarity Reversal Protection  Short-circuit Protection  Temperature Protection  Temperature protection  Other Parameters  Yes  Recover after eliminating the Short-circuit fault,no problem long term Short-circuit  95°C  Above 85°C,decrease the output power,decrease 3A per degree.	Input Polarity Reversal Protection		<u> </u>	
Recover after eliminating the Short-circuit fault,no problem long term Short-circuit  Temperature Protection  Temperature protection  Other Parameters				
Ilong term Short-circuit  Temperature Protection  Temperature protection  Temperature protection  Other Parameters  Ilong term Short-circuit  95°C  Above 85°C,decrease the output power,decrease 3A per degree.	Output Polarity Reversal Protection		P	
Above 85°C, decrease the output power, decrease 3A per degree.  Other Parameters	Short-circuit Protection		long term Short-circuit	
Other Parameters degree.	Temperature Protection			
	Temperature protection			
Noise ≤40dB	Other Parameters			
	Noise		≤40dB	

	Forced air cooling, fan speed rate regulated by		
	temperature, when inner temperature is too low, fan ran slowly		
	p working,fan also stop ran.		
	. Compliance with EU standards.All		
rated temperature of electrons	rated temperature of electrolytic capacitors not less than		
105°C			
No peculiar smell and and	toxic substances.		
Meet the 2002/95/EC,no ca	admium hydride and fluoride		
270*185*90			
3			
3.6			
Blue/Green (optional)			
CE,RoHS, PSE,FCC			
EN61000			
IP21			
0~90%RH ( no condense)			
0~3000m	0~3000m		
-20°C ~ +40°C	-20°C ~ +40°C		
-40°C ~ +75°C	-40°C ~ +75°C		
70~106kPa	70~106kPa		
EN61000 IP21 0~90%RH ( no condense) 0~3000m -20°C ~ +40°C -40°C ~ +75°C			

## **RS232 Connect Way**

