### Introduction

This is a <u>solar charge controller 40A  $\sim$ 60A</u> that have automatic max. power point tracking function with high

efficiency that almost  $30\%\sim60\%$  higher than traditional charge controller. It also features the functions of system

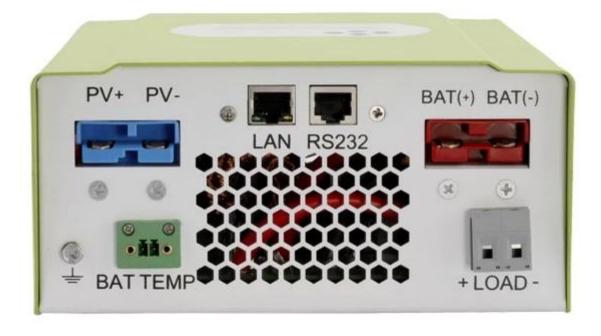
voltage auto recognition, wide rang of PV input ,charge for all kinds of battery,automatic discharge control,RS

232 / LAN communication function and so on. It is very high-end product for solar market with its best partner <u>I-P-TPI2 model Inverter/Charger/UPS.</u>

# **Application**

- 1. Industrial, commercial, household off grid solar energy generation system
- 2. Movable off grid solar energy generation system
- 3. Communication base stations
- 4. New energy education business
- 5. Solar Monitoring System
- 6. Solar Street Lighting System







### **Features**

- 1.MPPT charge mode, conversion efficiency upto 99%
- 2.12V/24V/48V system auto recognize;
- 3. Wide range of PV input with max. is DC150V.
- 4. Unlimited parallel connection
- $5. Journal\ function$  , Save function set ,Date ,time ,Generating capacity and so on .
- 6.Charge mode: three stages (fast charge ,constant charge ,floating charge) .It prolongs service life of the batteries .
- $7. Discharge \ mode: ON/OFF \ mode, double \ time \ control \ mode, PV \ voltage \ control \ mode \ , PV \ voltage + time \ delay \ mode \ and \ so \ on \ .$
- 8.Recommended battery types: sealed lead acid, vented, gel, NiCd battery. Other types of the batteries can also be defined.

- 9.Most information could be provide by LCD and LED like: model no.,PV input voltage,battery type,battery voltage,charging current,charging power,working status and so on. Also customer's information like company name,website and logo can be added into Solar Eagle software.
- 10.RS232 and LAN communication port. IP and Gate address could be user define it satisfy global area. And communication protocol can be provided to help customer manage all information .
- 11. The upper computer software is displayed in 11 languages, it could show work status and set parameters of the discharge system.
- 12. With intelligent design, the device can be upgraded online lifelong.
- 13. Adopting the well-known brand components, the devices can suffer the temperature not less than 105°C. The service life is designed to use for 10 years in theory.
- 14. Compliance with the 2002/95/EC environment protecting demand, doesn't include the Cadmium, hydride and fluoride etc material
- 15.Equipment integrity: controller + CD-ROM(microcomputer software) + communication wire + temperature sensing wire+Anderson terminals;
- 16.CE, ROHS certifications approved.
- 17.2 years warranty. And 3~10 years extended warranty service also can be provided.

### **Parameter**

Parameter					
Model:I-P-SMART2-40A/50A/60A -series		40A	50A	60A	
Charge Mode	Maximum Power F	Point Tracking	•	·	
Method	3 stages: fast char	ge(MPPT),constant volta	age, floating charge		
System Type	DC12V/24V/48V	Automatic recognition			
	12V system	DC9V~DC15V			
System Voltage	24V system	DC18V~DC30V			
	48Vsystem	DC36V~DC60V			
Soft Start Time	12V/24V/48Vsyste m				
Dynamic Response	12V/24V/48Vsyste	50000			
Recovery Time					
Conversion Efficiency	12V/24V/48Vsyste m				
PV Modules Utilization Rate	12V/24V/48Vsyste m	≥99%			
Input Character	istics				
		DC18V~DC150V			
MPPT Working Voltage and Range		DC34~DC150V			
	48V system	DC65~DC150V			
	12V system	DC16V			
Low Voltage Input Protection Point	24V system	DC30V			
	48V system	DC60V			
Low Voltage Input Recovery Point		DC22V			
Low voicage input Recovery Point	24V system	DC34V			
	48V system	DC65V			
Max DC Voltage	system	DC160V			
Input Overvoltage Protection Point	system	DC150			
Input Overvoltage Recovery Point	12V/24V/48V system	DC145V			
Max. PV Power	12V system	570W	700W	900W	
		1130W	1400W	1700W	
	48V system	2270W	2800W	3400W	
Output Characteristics					
Selectable Battery Types (Default type is GEL	12V/24V/48V	Sealed lead acid, vente			
battery)	system	(Other types of the bat	teries also can be defin	ed)	
Constant Voltage	12V/24V/48V system	Diago shook the -t	a valta da a accordir a ta	the better, two forms	
Floating Charge Voltage	12V/24V/48V system	Please check the charge voltage according to the battery type form.			

Develope Protection Voltage							
## System   12772647487   40A   50A   50A		12V system	14.6V				
B49 System   S44			29.2V	29.2V			
Section   Sect			58.4V				
System   S					1		
22/72/4/89V   A4A	Rated Output Current		40A	50A	60A		
Authorithenium protection   System   Authorithenium   A							
April	Current-limiting Protection		44A	55A	66A		
System   Nu.   Dua   D	Carrent mining riotection			3371	00,1		
System   S	Data shares surrent	12V/24V/48V	404	FOA	604		
Sempleature Factor   System   SULVAY-VIV	Rate charge current	System	40A	DUA	OUA		
Sempleature Factor   System   SULVAY-VIV		12V/24V/48V		-	-		
1.27/24/V48V   1.27	Temperature Factor		±0.02%/℃				
A./-Vi ne nignest remperature 2.25 () P.U.3   2.27/24/W48   2.27/24							
12/02/4/48V   system   200mV   5/24/48V	Temperature Compensation		14.2V-(The highes	t temperature-25°C)*0.3			
Output Vottage Stability Precision  Discharge voltage Peak-Peak Ripple  Discharge voltage accuracy  Discharge characteristic  Setting Control  Controller or LAN  Max discharge current  Discharge protection  Discharge voltage vol							
Section   Sect	Output Ripples(peak)		200mV				
System   S							
System   S	Output Voltage Stability Precision	12V/24V/48V	<+1 5%				
Control   System	Output Voltage Stability Frecision	system	3±1.570				
System   S		12V/24V/48V	200 1/				
Charger voltage accuracy System Discharge characteristic Setting Control  Activity Advision  Discharge current System Discharge protection Discharge voltage pro	Charge voitage Peak-Peak Rippie	System	200mV				
System   S							
Discharge characteristic    Controller or LAN     Max discharge current   System     Discharge protection   12V/24V/48V     Discharge protection   12V/24V/48V     Discharge protection   12V/24V/48V     Discharge protection   12V/24V/48V     Double-time control   12V/24V/48V     Double-time control   12V/24V/48V     Double-time control   12V/24V/48V     Discharge control   12V/24V/48V     PV voltage control   12V/24V/48V     PV voltage control   12V/24V/48V     PV voltage control   12V/24V/48V     PV voltage protection   12V/24V/48V     Discharge voltage protection   12V/24V/48V     Discharge voltage protection   12V/24V/48V     System   12V/24V/48V     Discharge voltage protection   12V/24V/48V     System   12V/24V/48V     System   12V/24V/48V     Discharge voltage protection   12V/24V/48V     System   12V/24V/24V/24V     System   12V/24V/24V/24V/24V/24V	Charger voltage accuracy		≤±1.5%				
Setting Control  Max discharge current  12V/24V/48V System  Double-time control  12V/24V/48V System  PV voltage control  12V/24V/48V PV voltage control  12V/24V/48V PV voltage protection  12V/24V/48V Discharge voltage protection  Discharge voltage voltage protection  Discharge protection  Di	Disabassa ahassa ahasiatia	Бузсені					
Max discharge current    12V/24V/48V   System   12V/24V/48V   System							
System   S	Setting Control		oller or LAN				
System   12V/24V/48V   System   12V/24V/48V   System   On in morning, off in morning / On in night, off in night   System   On in morning / On in night, off in night   System   On in morning / On in night, off in night   System   On / OFF	May discharge current	12V/24V/48V	104				
Discharge protection  Double-time control  System  Double-time control  Double-time delay control  Double-time del	Max discharge current	System	40A				
Discharge protection  Double-time control  System  Double-time control  Double-time delay control  Double-time del		12V/24V/48V					
Double-time control    23/724/189V System   System   21/724/189V   System   21/724/189V   System   21/724/189V   System   PV voltage control   System   PV voltage control   System   PV voltage off   System   Syst	Discharge protection	, , ,	fuse 30A*2				
Double-time control  System  ON / OFF  Violtage control  22/V24/V48V System  Violtage or oltrol  22/V24/V48V System  System  Discharge voltage protection  12/V24/V48V System							
DN / OFF mode   System   Sys	Double-time control		On in morning ,off	in morning / On in night ,off in night			
System PV voltage control System PV voltage control System PV voltage on[PV voltage on[PV voltage off System PV voltage your delay control System AN Communication Features  AN Communication System AN Communication AN Gale address for controller setting voltage; factory set is 10.5 (Note: set based on 1 battery) Set IP and Gate address for controller setting voltage; factory set is 10.5 (Note: Set based on 1 battery) An Communi			-				
System   PV voltage control   12V/24V/48V   System   PV voltage on (PV voltage of (PV voltage) of (PV vol	ON / OFF mode		ON / OFF				
PV voltage control  System PV voltage / time delay control  12V/24V/48V System Discharge voltage protection Discha	011, 011 111000		011, 011				
System   12V/24V/48V   System   12V/24V/48V   System   2V voltage on[time delay off   12V/24V/48V   System   2V voltage on [time delay off   12V/24V/48V   2V voltage on [time delay off   12V/24V/48V   2V voltage on [time delay off   12V/24V/48V   2V voltage off	D) ( voltage sentral	12V/24V/48V	D\/ valtage en \D\/	valtage off			
PV voltage / time delay control    12V/24V/48V   System	PV Voltage Control	System	PV Voltage on PV	voitage on			
PV Voltage of Lime delay Control  System  Discharge voltage protection  LAN Communication  Davizy Valvi48V System  System  Discharge voltage protection  LAN Communication  Protection  Discharge							
Discharge voltage protection    207/24V/48V   System	PV voltage / time delay control	, , ,	PV voltage on tim	e delay off			
Dutput off when it under setting voltage; Factory set is 10.5.1 (Note : set pased on 1 pattery )							
Communication Features  RS232 Communication  L2V/24V/48V System System  Protection Input Low Voltage Protection Input Low Voltage Protection Input Deveroltage Protection Input Overoltage Protection Input Polarity Reversal Protection Output Veroltage Protection Output Polarity Reversal Protection Output Veroltage Protection Output Polarity Reversal Prot	Discharge voltage protection		Output off when it	under setting voltage: Factory set is 10.5	.( Note : set based on 1 battery )		
AS 232 Communication  LAN Communication  LAN Communication  Protection Input Low Voltage Protection Input Low Voltage Protection Input Low Voltage Protection Input Low Voltage Protection Input Overvoltage Protection Input Overvoltage Protection Input Vervoltage Protection Input Ver	<u> </u>	System					
LAN Communication    22V/24V/8V   System   Chose COM communication	Communication Features		,				
System Protection   12V/24V/48V   System     12V/24V/24V/48V   System     12V/24V/48V   System     12V/24V/48V   System   12V/24V/4	DC322 Communication	12V/24V/48V	Chasa COM same	unication			
AN Communication    22//24//48V   System   Set IP and Gate address for controller and solar eagle ;Then chose TCP communication   Protection	RS232 Communication	System	Chose COM Comm	unication			
System   S							
Protection Input Low Voltage Protection Input Devrovltage Protection Input Overvoltage Protection Input Overvoltage Protection Output Overvoltage Protection Output Overvoltage Protection Output Polarity Reversal Protection Output Polarity Reversal Protection Output Polarity Reversal Protection Output Polarity Reversal Protection Personal Protection Recover after eliminating the Short-circuit fault, no problem for long term Short-circuit Temperature Protection Ps°C Temperature Protection Above 85°C,decrease the output power, decrease 3A per degree. Other Parameters Noise  Above 85°C,decrease the output power, decrease 3A per degree. Other Parameters  Short-circuit Fortection Above 85°C,decrease the output power, decrease 3A per degree. Other Parameters  Noise  Forced air cooling, fan speed rate regulated by temperature, when inner temperature is too low fan ran slowly or stop; when controller stop working, fan also stop ran.  Components  Components  World brand raw materials. Compiliance with EU standards. All rated temperature of electrolytic capacitors not less than 105°C Smell No peculiar smell and toxic substances. Environment Protection Meet the 2002/95/EC, no cadmium hydride and fluoride Physical  Measurement DxWxH (mm) 270°185*90 M.G/(kg) 3.6 Color Blue/Green (optional) Safety CE, RoHS, PSE, FCC EMC EMC EMC EMC EMC EMG1000  Type of Mechanical Protection P21 Environment Humidity O-90%RH (no condense) Altitude O-3000m Operating Temperature 40°C ~ +40°C Storage Temperature 40°C ~ +75°C	LAN Communication		Set IP and Gate ad	ldress for controller and solar eagle ;Then	chose TCP communication		
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Noise ≤40dB Thermal methods forced air cooling, fan speed rate regulated by temperature, when inner temperature is too low fan ran slowly or stop; when controller stop working, fan also stop ran.  World brand raw materials. Compliance with EU standards. All rated temperature of electrolytic capacitors not less than 105°C Smell No peculiar smell and toxic substances.  Environment Protection Meet the 2002/95/EC,no cadmium hydride and fluoride Physical Measurement DxWxH (mm) 270*185*90 N.G(kg) 3 G.N(kg) 3.6 Color Blue/Green (optional) Safety CE, RoHS, PSE,FCC EMC EN61000 Type of Mechanical Protection   IP21 Environment Humidity			Above 85°C,decre	ase the output power, decrease 3A per de	gree.		
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fan ran slowly or stop; when controller stop working, fan also stop ran.  World brand raw materials. Compliance with EU standards. All rated temperature of electrolytic capacitors not less than 105°C  Smell No peculiar smell and toxic substances.  Environment Protection Meet the 2002/95/EC,no cadmium hydride and fluoride  Physical  Measurement DxWxH (mm) 270*185*90  N.G(kg) 3  G.N(kg) 3.6  Color Blue/Green (optional)  Safety CE, RoHS, PSE,FCC  EMC EN61000  Type of Mechanical Protection   IP21  Environment  Humidity 0~90%RH ( no condense)  Altitude 0~3000m  Operating Temperature 20°C ~ +40°C  Storage Temperature  40°C ~ +75°C				fan speed rate regulated by temperature	when inner temperature is too low		
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capacitors not less than 105°C  Smell  No peculiar smell and toxic substances.  Environment Protection  Meet the 2002/95/EC,no cadmium hydride and fluoride  Physical  Measurement DxWxH (mm)  270*185*90  N.G(kg)  3.6  G.N(kg)  3.6  Color  Blue/Green (optional)  Safety  CE, RoHS, PSE,FCC  EMC  EN61000  Type of Mechanical Protection  IP21  Environment  Humidity  0~90%RH ( no condense)  Altitude  Operating Temperature  -20°C ~ +40°C  Storage Temperature							
Capacitors not less than 105°C   Smell	Components				an rated temperature of electrolytic		
Environment Protection  Physical  Meat the 2002/95/EC,no cadmium hydride and fluoride  Physical  Measurement DxWxH (mm)  270*185*90  N.G(kg)  3.6  Color  Blue/Green (optional)  Safety  CE, RoHS, PSE,FCC  EMC  EN61000  Type of Mechanical Protection  IP21  Environment  Humidity  0~90%RH (no condense)  Altitude  0~3000m  Operating Temperature  20°C ~ +40°C  Storage Temperature	·						
Physical           Measurement DxWxH (mm)         270*185*90           N.G(kg)         3           G.N(kg)         3.6           Color         Blue/Green (optional)           Safety         CE, RoHS, PSE,FCC           EMC         EN61000           Type of Mechanical Protection         IP21           Environment         Humidity           Humidity         0~90%RH ( no condense)           Altitude         0~3000m           Operating Temperature         -20°C ~ +40°C           Storage Temperature         -40°C ~ +75°C							
Measurement DxWxH (mm)         270*185*90           N.G(kg)         3           G.N(kg)         3.6           Color         Blue/Green (optional)           Safety         CE, RoHS, PSE,FCC           EMC         EN61000           Type of Mechanical Protection         IP21           Environment         Humidity           Humidity         0~90%RH ( no condense)           Altitude         0~3000m           Operating Temperature         20°C ~ +40°C           Storage Temperature         40°C ~ +75°C	Environment Protection		Meet the 2002/95/	EC,no cadmium hydride and fluoride			
Measurement DxWxH (mm)         270*185*90           N.G(kg)         3           G.N(kg)         3.6           Color         Blue/Green (optional)           Safety         CE, RoHS, PSE,FCC           EMC         EN61000           Type of Mechanical Protection         IP21           Environment         Humidity           Humidity         0~90%RH ( no condense)           Altitude         0~3000m           Operating Temperature         20°C ~ +40°C           Storage Temperature         40°C ~ +75°C	Physical						
N.G(kg)       3         G.N(kg)       3.6         Color       Blue/Green (optional)         Safety       CE, RoHS, PSE,FCC         EMC       EN61000         Type of Mechanical Protection       IP21         Environment       Humidity         Humidity       0~90%RH ( no condense)         Altitude       0~3000m         Operating Temperature       20°C ~ +40°C         Storage Temperature       40°C ~ +75°C	Measurement DxWxH (mm)		270*185*90				
G.N(kg)       3.6         Color       Blue/Green (optional)         Safety       CE, RoHS, PSE,FCC         EMC       EN61000         Type of Mechanical Protection       IP21         Environment       Humidity         Humidity       0~90%RH ( no condense)         Altitude       0~3000m         Operating Temperature       -20°C ~ +40°C         Storage Temperature       -40°C ~ +75°C							
Color         Blue/Green (optional)           Safety         CE, RoHS, PSE,FCC           EMC         EN61000           Type of Mechanical Protection         IP21           Environment         Humidity           Altitude         0~90%RH ( no condense)           Altitude         0~3000m           Operating Temperature         -20°C ~ +40°C           Storage Temperature         -40°C ~ +75°C							
Safety         CE, RoHS, PSE,FCC           EMC         EN61000           Type of Mechanical Protection         IP21           Environment         IP21           Humidity         0~90%RH ( no condense)           Altitude         0~3000m           Operating Temperature         -20°C ~ +40°C           Storage Temperature         -40°C ~ +75°C							
EMC         EN61000           Type of Mechanical Protection         IP21           Environment         0~90%RH ( no condense)           Altitude         0~3000m           Operating Temperature         -20°C ~ +40°C           Storage Temperature         -40°C ~ +75°C							
Type of Mechanical Protection         IP21           Environment         0~90%RH ( no condense)           Humidity         0~3000m           Altitude         0~3000m           Operating Temperature         -20°C ~ +40°C           Storage Temperature         -40°C ~ +75°C							
Type of Mechanical Protection         IP21           Environment         0~90%RH ( no condense)           Humidity         0~3000m           Altitude         0~3000m           Operating Temperature         -20°C ~ +40°C           Storage Temperature         -40°C ~ +75°C			EN61000				
Environment  Humidity $0\sim 90\%$ RH ( no condense)  Altitude $0\sim 3000$ m  Operating Temperature $-20\%$ $\sim +40\%$ Storage Temperature $-40\%$ $\sim +75\%$							
Humidity0~90%RH ( no condense)Altitude0~3000mOperating Temperature $-20$ °C ~ $+40$ °CStorage Temperature $-40$ °C ~ $+75$ °C			r				
Altitude 0~3000m Operating Temperature $-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$ Storage Temperature $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$		lnnn	ARH ( no condence)				
Operating Temperature $-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$ Storage Temperature $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$							
Storage Temperature -40°C ~ +75°C							
	Storage Temperature						
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		1					

Note: OEM and ODM service are provided. The 36V/72V/96V model also can be custom made for you.

### **Product Parts**

NO.	Quantity	Description
1	1 unit	Charge controller
2	2 pc	Terminals

3	2 pc	Gallow pulley
		(For install the controller on the wall )
4	4 set	Screw
		(For install the controller on the wall )
5	1 pc	232 turn to RJ45 communication cable
6	1 pc	User manual
7	1 pc	Temperature sensing wire
8	2 pc	Fuse wire



**Upper Computer Software and Test Software** 



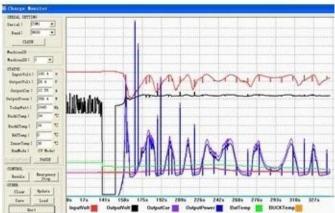


The interface of upper computer software working state

The interface of upper computer software parameter setting state

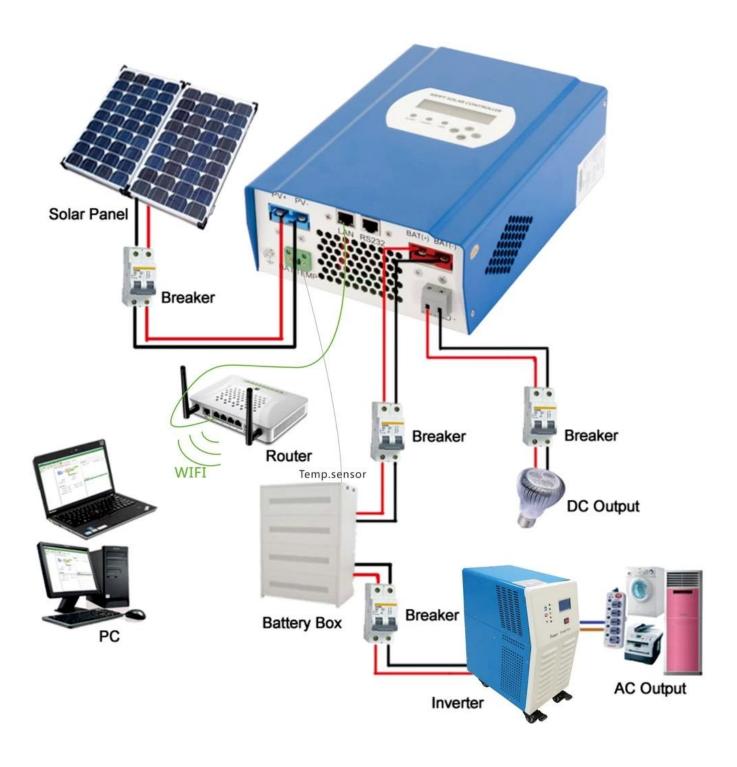


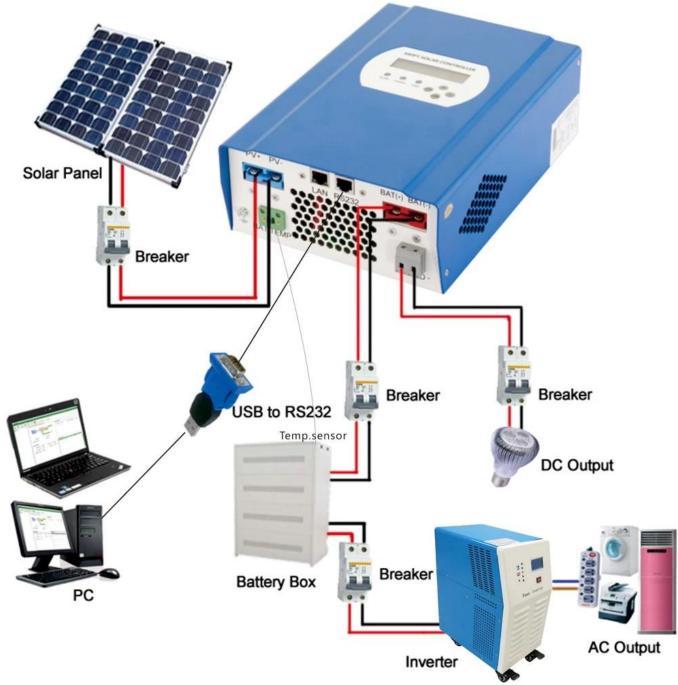
Upper computer software on/off interface and generating capacity record clean interface



The interface of test software working state

## **MPPT Connection**





### **Service and Contact**

#### 1. Warranty

1.2 years warranty, lifelong technical assistance.

#### 2. Conditions and Terms

- 2.1 The warranty starts from the delivery date from our factory.
- 2.2 During the warranty, any defective product will get repaired or replaced for free.
- 2.3 The warranty is unavailable for those products which are broken by the violence or the carelessness or

repaired or altered without the authorization.

## 3. Lead Time

- 3.1 Sample orders will be delivered from our factory within 5-7 working days.
- 3.2 General orders will be delivered from our factory within 7-15 working days.
- 3.3 Big orders will be delivered from our factory within 25 working days at most.

### 4. Shipment

- 4.1 Samples By EMS, DHL, FedEx or other express.
- 4.2 Wholesale orders by our forwarding agent(by air or by sea).
- 4.3 Wholesale orders by your own forwarding agent.

5. OEM and ODM
5.1 This page shows basic data, we can provide OEM, ODM service for you.