#### 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

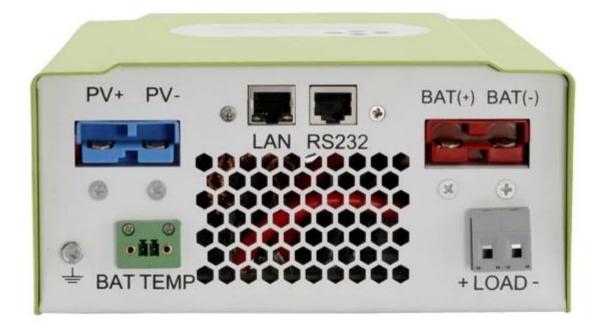
232 / LAN communication function and so on. It is very high-end product for solar market with its best partner <u>I</u>-

P-TPI2 model Inverter/Charger/UPS.

# **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







#### **Reasons to choose**

- 1. 30%-60% solar panels saved
- 1) Conversion efficiency 95%-99%, take most from solar panels
- 2) Charge for all kinds of batteries, 3 charge stage to protect battery. Reduce consumption, cost saved.
- 2. Data monitor and set. Parameters from solar panels like charge current/voltage and IP gate address, total

generation power, etc can be showed. 4 kinds DC load control, automaticly save ernergy both from human and solar.

- 3. Lan commucation and RS232 port.
- 4. Software to monitor 100pcs equipments at the same time on one screen on a computer.

#### **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.

### **Parameter**

Model:I-P-SMART2-40A/50A/60A -series		40A	50A	60A	
Charge Mode	Maximum Power F	Point Tracking	•	·	
Method	3 stages: fast charge(MPPT),constant voltage, floating charge				
System Type	DC12V/24V/48V	Automatic recognition			
System Voltage	12V system	DC9V~DC15V			
	24V system	DC18V~DC30V			
	48Vsystem	DC36V~DC60V			
Soft Start Time	12V/24V/48Vsyste m				
Dynamic Response Recovery Time	12V/24V/48Vsyste m				
Conversion Efficiency	12V/24V/48Vsyste m				
PV Modules Utilization Rate	12V/24V/48Vsyste m	≥99%			
Input Characteristics					
	-,	DC18V~DC150V			
MPPT Working Voltage and Range	-,	DC34~DC150V			
	48V system	DC65~DC150V			
	12V system	DC16V			
Low Voltage Input Protection Point	-,	DC30V			
	,	DC60V			
Low Voltage Input Recovery Point		DC22V			
	-,	DC34V			
		DC65V			
Max DC Voltage	system	DC160V			
Input Overvoltage Protection Point	12V/24V/48V system	DC150			
Input Overvoltage Recovery Point	12V/24V/48V system	DC145V			

Mass. PV Power		12V syste	m	570W	700W		900W	
Dutput Characteristics	Max BV Power							
Output Contract Hittle Selection Selection (1998) (2014) (1998) (	Max. FV Fower							
Selectable Sattley (types (Default type is GEL   2024/44/94   Sealed lead acid, verende, Gel, MiCo battery)   Sealed lead acid, verende, Gel, MiCo battery   Sealed acid, Mico battery	Output Charastaristics	46V Syste	m	2270VV	2800W		3400W	
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Page			18 V			inod)		
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Power   Charge Protection   12-V3-y4489	_		101/	Please check the c	harge voltage according to	o the battery type	pe form.	
December	Floating Charge Voltage		18 V					
Description	3 3 3							
BBV								
No.   So.	Over Charge Protection Voltage							
System   S				58.4V				
Current-limiting Protection	Rated Output Current	12V/24V/4	18V	404	504		604	
Lurrent-luming protection bystem such as SA box and SA box such as	Nated Output current			70A	JUA		OOA	
August   A	Current limiting Protection	12V/24V/4	V84	111	551		664	
rate charge current   System   NuA   puA		system		444	PSA		OOA	
Paytern Sector   S2VENT Sector   12VENT Sector	Data charge current	12V/24V/4	18V	404	E0A		604	
Emperature Factor   System   12V24V48V	Rate charge current	System		404	POA		OUA	
	Tomporaturo Factor	12V/24V/4	18V	+0.03%/90				
Interpretative Compensation   system   14,724 in eningrest temperature 25 1,701.3	l emperature ractor	system		±0.02%/ C				
Dutput Ripples(peak)   Dutput Voltage Stability Precision   System	T	12V/24V/4	18V	14.2V (The highest temperature 25°C)*0.2				
Output Voltage Stability Precision         system         2001/W           Output Voltage Stability Precision         12V/24/448V         s±1.5%           System         12V/24/448V         s±1.5%           Discharge voltage Peak-Peak Ripple         12V/24/448V         s±1.5%           Discharge characteristic         52EET Control         Controller or LAN           Max discharge current         12V/24/448V         40A           Discharge protection         12V/24/448V         40A           System         59EET System         59EET System           Double-lime control         12V/24/448V         On in morning of in morning of in morning on in night, off in night           ON / OFF mode         12V/24/448V         System           PV voltage control         12V/24/448V         PV voltage on (FPV voltage off System           PV voltage in time delay control         12V/24/448V         PV voltage on (Time delay off System           PV voltage in time delay control         12V/24/448V         Output off when it under setting voltage; Factory set is 10.5. (Note: set based on 1 battery)           Discharge voltage protection         12V/24/48V         Output off when it under setting voltage; Factory set is 10.5. (Note: set based on 1 battery)           Communication         12V/24/48V         System         Chose COM communication         System	remperature Compensation	system		14.2v-(The nighest temperature-25°C)*0.3				
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2V/24V/48V   System	Output Rippies(peak)			200mV				
System   S			18V					
Charge voltage Peak-Peak Rippie   \$\frac{12\text{V/44V48V}{y\text{stem}}\$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Output Voltage Stability Precision			≤±1.5%				
Charger voltage Peak-Yeak Ripple    2007/24/V48V   System   System   System   System   System   System   Stating Control   Controller or LAN	a		18V					
Light   Controller or LAN	Charge voltage Peak-Peak Ripple			200mV				
Setting Control   Controller or LAN			18\/					
Discharge characteristic  Controller or LAN  Max discharge current  System  Discharge protection  Discharge control  Discharge voltage control  PV voltage control  Discharge voltage protection  Discharge voltage voltag	Charger voltage accuracy			≤±1.5%				
Setting Control  Analyze (Controller or LAN)  Max discharge current  System  12V/24V/48V System  12V/24V/48V System  Double-time control  12V/24V/48V System  Double-time control  12V/24V/48V System  Double-time control  12V/24V/48V System  Double-time control  12V/24V/48V System  Double-time delay control  12V/24V/48V System  PV voltage control  12V/24V/48V System  PV voltage protection  12V/24V/48V System  Double-time delay control  12V/24V/48V System  Double-time delay control  12V/24V/48V System  Double-time delay control  12V/24V/48V System  PV voltage protection  12V/24V/48V System  Communication Features  RS232 Communication  12V/24V/48V System  Chose COM communication  System  Chose COM communication  12V/24V/48V System  Chose COM communication  12V/24V/48V System  Chose COM communication  12V/24V/48V System  Chock the input characteristics Input tow Voltage Protection Input tow Voltage Protection Input tow Voltage Protection Input Delarity Reversal Protection  Check the input characteristics  Output Polarity Reversal Protection  Output Deveroidage Protection  Output Polarity Reversal Protection  Recover after eliminating the Short-circuit fault, no problem for long term Short-circuit Temperature Protection  Recover after eliminating the Short-circuit fault, no problem for long term Short-circuit Temperature Protection  Removerable Toward and wasterials. Complaince with EU standards. All rated temperature is too low far an as lowly or stop; when controller stop working, fan also stop ran.  World brand raw materials. Complaince with EU standards. All rated temperature is too low far an as lowly or stop; when controller stop working, fan also stop ran.  World brand raw materials. Complaince with EU standards. All rated temperature of electrolytic Section  Bull-Green (optional)  Set type of Mechanical Protection  ENV CE. Roffs, PSE, ECC  EMM CE. Roffs, PSE, ECC  EMM CE. Roffs, PSE, ECC	Discharge characteristic	Бузсен						
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Discharge protection Discharge control Discharge control Discharge control Discharge voltage protection Discharge Protection Discharge voltage Protection Discharge Protect	Setting Control			UI LAN				
Discharge protection	Max discharge current		18 V	40A				
Double-time control    297/24/y48V   System   Sy			10) (					
Double-time control  2VIZ-4W/4BV System  DN / OFF  2VIZ-4W/4BV System  PV voltage control  2VIZ-4W/4BV System  Discharge voltage protection  2VIZ-4W/4BV System  Chose COM communication  E2VIZ-4W/4BV System  Set IP and Gate address for controller and solar eagle ;Then chose TCP communication  Protection  Input Owervoltage Protection  Check the input characteristics  Check the input characteristics  Check the input characteristics  Output Overvoltage Protection  Check the output characteristics  Output Polarly Reversal Protection  Set Crease the output power, decrease 3A per degree.  Other Parameters  Noise  40dB  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.  Components  Smell  No Secure and Protection  Meet the 2002/95/EC.no cadmium hydride and fluoride  Physical  Measurement DxWxH (mm)  O-90%RH ( no condense)	Discharge protection		181	fuse 30A*2				
Double-time control   System	3 1							
Discharge control   12V/24V/48V   System   PV voltage on[]PV voltage off   12V/24V/48V   System   PV voltage on[]PV voltage on[]PV voltage off   12V/24V/48V   System   PV voltage on[]PV voltage on[]PV voltage; Factory set is 10.5. (Note : set based on 1 battery )   Discharge voltage protection   12V/24V/48V   System   PV voltage on[]time delay off   System   PV voltage protection   System   System   PV voltage protection   System   PV voltage protection   System   PV voltage Protection   System   PV voltage Protection   PV voltage Protection   Check the input characteristics   System   PV voltage Protection	Double-time control		18V	On in morning .off in morning / On in night .off in night				
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Output Polarity Reversal Protection Short-circuit Protection Recover after eliminating the Short-circuit fault, no problem for long term Short-circuit Temperature Protection J95°C Temperature protection Above 85°C, decrease the output power, decrease 3A per degree.  Other Parameters Noise StaddB 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 metrals. Compliance with EU standards. All rated temperature of electrolytic capacitors not less than 105°C No peculiar smell and toxic substances.  Environment Protection Meet the 2002/95/EC,no cadmium hydride and fluoride  Measurement DxWxH (mm) 270*185*90 N.GI(kg) 3.6 G.NIkg) 3.6 G.NIkg) 3.6 Color Blue/Green (optional) Safety ENGLA PROSE, FCC EMC ENGLA PROSE, FCC EMC ENGLA PROSE, FCC EMC ENGl000 Type of Mechanical Protection   IP21 Environment Humidity O~90%RH ( no condense) Altitude O~3000m Operating Temperature 40°C ~ +40°C Storage Temperature 40°C ~ +40°C				,				
Short-circuit Protection  Recover after eliminating the Short-circuit fault, no problem for long term Short-circuit  Temperature Protection  Above 85°C, decrease the output power, decrease 3A per degree.  Other Parameters  Noise  SeatodB  Thermal methods  Thermal methods  Components  Smell  No peculiar smell and toxic substances.  Environment Protection  Measurement DxWxH (mm)  NaG(kg)  Snell  Sne								
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Temperature protection  Other Parameters  Noise  ≤40dB  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 3  G.N(kg) 3 3.6  Color Blue/Green (optional)  Safety CE, RoHS, PSE,FCC  EMC EN61000  Type of Mechanical Protection  Environment  Humidity 0~90%RH (no condense)  Altitude 0~3000m  Operating Temperature 4.20°C ~ +40°C  Storage Temperature  40°C ~ +75°C								
Other Parameters 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 Type of Mechanical Protection  Environment  Humidity 0~90%RH (no condense)  Altitude 0~3000m  Operating Temperature 220°C ~ +40°C  Storage Temperature  -40°C ~ +75°C								
S40dB   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.   Royironment Protection   Meet the 2002/95/EC,no cadmium hydride and fluoride   Physical   Smeasurement DxWxH (mm)   270*185*90   3.6   Color   Blue/Green (optional)   Safety   CE, RoHS, PSE, FCC   ENGLOO   ENGLOO   ENGLOO   ENGLOO   PSE, FCC   PSE, FC							gree.	
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  No peculiar smell and toxic substances.  Environment Protection  Meet the 2002/95/EC,no cadmium hydride and fluoride  Physical  World brand raw materials. Compliance with EU standards. All rated temperature of electrolytic capacitors not less than 105°C  No peculiar smell and toxic substances.  Meet the 2002/95/EC,no cadmium hydride and fluoride  Physical  Society  Socie								
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	Noise							
Components  No peculiar smell and toxic substances.  Environment Protection  Meet the 2002/95/EC,no cadmium hydride and fluoride  Measurement DxWxH (mm)  Components  Color  Color  Blue/Green (optional)  Safety  CE, RoHS, PSE,FCC  EMC  Type of Mechanical Protection  Environment  Humidity  O~90%RH ( no condense)  Altitude  Operating Temperature  Component  Port Capacitors not less than 105°C  World brand raw materials. Compliance with EU standards. All rated temperature of electrolytic capacitors not less than 105°C  Rectify and toxic substances.  Meet the 2002/95/EC,no cadmium hydride and fluoride  Meet the 2002/95/EC,no cadmium hydride and fluori	Thermal methods							
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)  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	Inermai methous							
Capacitors not less than 105°C	Company			World brand raw materials. Compliance with EU standards. All rated temperature of electrolytic				
Environment Protection  Physical  Measurement DxWxH (mm)  Solution  Measurement DxWxH (mm)  Solution  Measurement DxWxH (mm)  Measurement DxWxH (mm)  Solution  Measurement DxWxH (mm)  Meat the 2002/95/EC,no cadmium hydride and fluoride  ### Page of the 2002 ### ### ### ### ### ### ### ### ##	Components							
Physical Measurement DxWxH (mm) 270*185*90 3 G.N(kg) 3 3.6 Color Blue/Green (optional) Safety CE, RoHS, PSE,FCC EMC ENG1000 IP21 Environment Humidity 0 $\sim$ 90%RH ( no condense) Altitude 0 $\sim$ 3000m Operating Temperature 20°C $\sim$ +40°C Storage Temperature $-40^{\circ}\text{C} \sim$ +75°C				No peculiar smell and toxic substances.				
Physical Measurement DxWxH (mm) 270*185*90 3 G.N(kg) 3 3.6 Color Blue/Green (optional) Safety CE, RoHS, PSE,FCC EMC ENG1000 IP21 Environment Humidity 0 $\sim$ 90%RH ( no condense) Altitude 0 $\sim$ 3000m Operating Temperature 20°C $\sim$ +40°C Storage Temperature $-40^{\circ}\text{C} \sim$ +75°C	Environment Protection	Meet the 2002/95/	EC,no cadmium hydride a	nd 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       IP21         Humidity       0~90%RH (no condense)         Altitude       0~3000m         Operating Temperature       -20°C ~ +40°C         Storage Temperature       -40°C ~ +75°C								
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								
Blue/Green (optional)   Safety	G.N(kg)							
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	- ( 3)							
EMC       EN61000         Type of Mechanical Protection       IP21         Environment       0~90%RH ( no condense)         Altitude       0~3000m         Operating Temperature $-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$ Storage Temperature $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$								
Type of Mechanical Protection   P21   Environment   P21   P21   P3   P3   P3   P4   P4   P4   P4   P4								
Environment  Humidity $0\sim 90\%$ RH ( no condense)  Altitude $0\sim 3000$ m  Operating Temperature $-20\%$ $\sim +40\%$ Storage Temperature $-40\%$ $\sim +75\%$								
Humidity $0\sim90\%RH$ ( no condense)Altitude $0\sim3000m$ Operating Temperature $-20^{\circ}C \sim +40^{\circ}C$ Storage Temperature $-40^{\circ}C \sim +75^{\circ}C$	/1							
Altitude 0~3000m Operating Temperature $-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$ Storage Temperature $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$		1.	0.00/5:	1/2000				
Operating Temperature $-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$ Storage Temperature $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$								
Storage Temperature $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$								
Atmospheric Pressure [70~106kPa								
	Atmospheric Pressure		70~106k	Pa				

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	<u>Charge controller</u>	
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** 



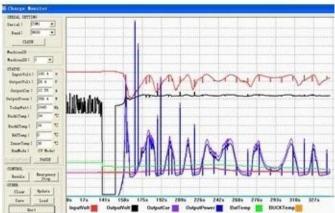


The interface of upper computer software working state

The interface of upper computer software parameter setting state

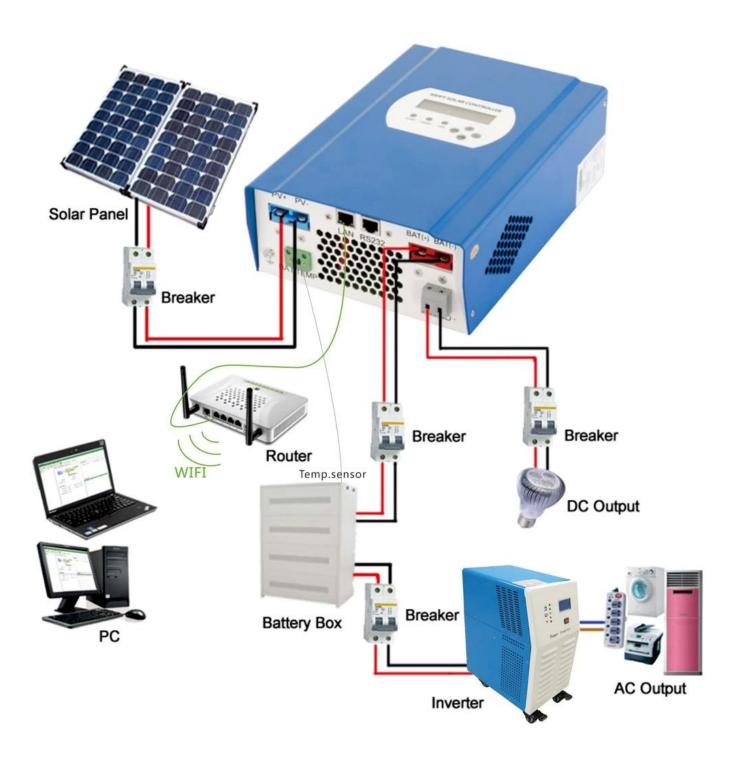


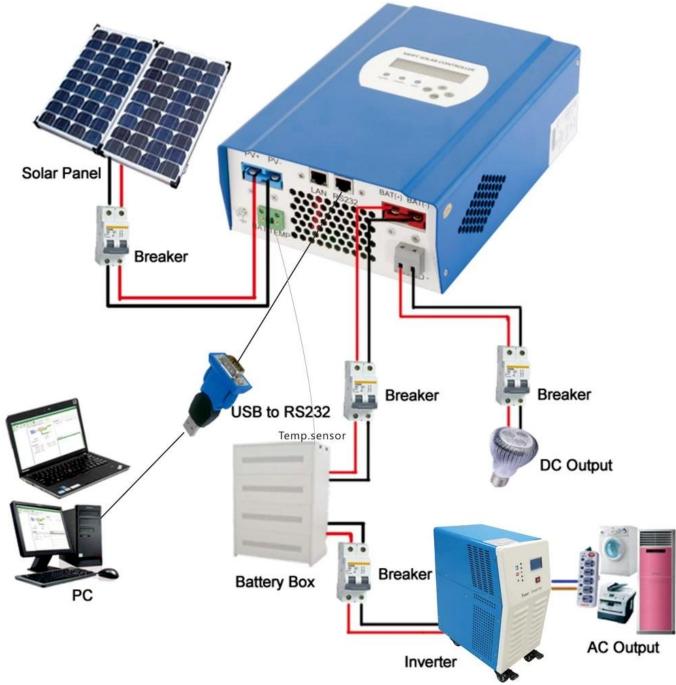
Upper computer software on/off interface and generating capacity record clean interface



The interface of test software working state

### **MPPT Connection**





Certificates

**ISO2008** 

**ISO2004** 

<u>CE</u>

**ROHS** 

**FCC** 

### **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.