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

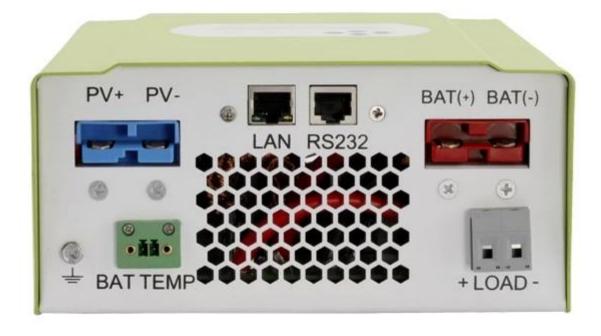
voltage auto recognition, wide rang of PV input ,charge for all kinds of battery,automatic discharge control,RS

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

| Model:I-P-SMART2-40A/50A/60A -series | | 40A 50A 60A | | |
|---|------------------------------|---|--|--|
| Charge Mode | Maximum Power Point Tracking | | | |
| Method | | arge(MPPT),constant voltage, floating charge | | |
| System Type | | Automatic recognition | | |
| | | DC9V~DC15V | | |
| System Voltage | | DC18V~DC30V | | |
| | 48Vsystem | DC36V~DC60V | | |
| Soft Start Time | 12V/24V/48Vsyste m | | | |
| Dynamic Response Recovery Time | 12V/24V/48Vsyste m | e 500us | | |
| Conversion Efficiency | 12V/24V/48Vsyste m | 290.370,39970 | | |
| PV Modules Utilization Rate | 12V/24V/48Vsyste m | e >99% | | |
| Input Character | istics | | | |
| | 12V system | DC18V~DC150V | | |
| MPPT Working Voltage and Range | 24V system | DC34~DC150V | | |
| | 48V system | DC65~DC150V | | |
| | 12V system | DC16V | | |
| Low Voltage Input Protection Point | | DC30V | | |
| | 48V system | DC60V | | |
| Low Voltage Input Recovery Point | 12V system | DC22V | | |
| Low voitage input Recovery Point | 24V system | DC34V | | |
| | 48V system | DC65V | | |
| Max DC Voltage | system | DC160V | | |
| Input Overvoltage Protection Point | 12V/24V/48V system | DC150 | | |
| Input Overvoltage Recovery Point | 12V/24V/48V system | DC145V | | |
| | 12V system | 570W 700W 900W | | |
| Max. PV Power | 24V system | 1130W 1400W 1700W | | |
| | 48V system | 2270W 2800W 3400W | | |
| Output Characteristics | | | | |
| Selectable Battery Types (Default type is GEL | 12V/24V/48V | Sealed lead acid, vented, Gel, NiCd battery | | |
| battery) | system | (Other types of the batteries also can be defined) | | |
| Constant Voltage | 12V/24V/48V | | | |
| Constant Foliage | system | Please check the charge voltage according to the battery type form. | | |
| Floating Charge Voltage | 12V/24V/48V | | | |
| | system | | | |
| | 12V system | 14.6V | | |
| Over Charge Protection Voltage | 24V system | 29.2V | | |
| | 48V system | 58.4V | | |

| Name | | | | | | | |
|--|------------------------------------|-------------|--|--|------------------------|------------------------------------|--|
| Current-limiting Protection by Server | Rated Output Current | 12V/24V/48V | 40A | 50A | | 60A | |
| System AL DA GOA Solar Charge current System 12/2/4/489V 50, \$0,0 \$0,0 \$00. Temperature Factor 12/2/4/88V 50,00 \$0,00 \$0.00 | | | | | | | |
| Rate charge current 12/17/34/89V 10.0 50.0 50.0 | Current-limiting Protection | | 44A | 55A | | 66A | |
| Temperature Foctor 5/50/24/V489/ 5/5589 10.02/W/TC Temperature Compensation 12/12/24/V489/ 5/5589 14.2V-(The highest temperature 25°C)*0.3 Dutput Ripplesipeak) 12/V24/V48V 5/5589 14.2V-(The highest temperature 25°C)*0.3 Dutput Voltage Stability Precision 5/5589 12/V24/V48V 5/558 | | | 40.4 | 504 | | 504 | |
| Comparative Pactor System 20.02x3/C | Rate charge current | System | 40A | 50A | | 60A | |
| Communication Control | Temperature Factor | | +0.02%/°C | | | | |
| Imperature Compensation system International 12/2/44/W8V system | Temperature ractor | | 20.0270/ 0 | | | | |
| 22/724/48V 200mV 22/724/48V 200mV 22/724/48V 22/724/48V 200mV 22/724/48V 22/724/48V 200mV 22/724/48V 200mV 22/724/48V 20mV 22/724/48V 22/724 | Temperature Compensation | | 14.2V-(The highest temperature-25°C)*0.3 | | | | |
| Output Voltage Stability Precision System 20UmV Charge voltage Peak-Peak Ripple 12V724W48V system 200mV Charge voltage accuracy 12V724W48V system 200mV Discharge characteristic 520m Setting Control Controller or LAN Max discharge current 12V724W48V system Discharge protection 12V724W48V system Double-time control 12V724W48V system On I OFF mode 12V724W48V system V voltage control 12V724W48V system V voltage control 12V724W48V system V voltage prime delay control 12V724W48V system V voltage prime delay control 12V724W48V system Discharge voltage protection 12V724W48V system AS323 Communication 12V724W48V system AS232 Communication 12V724W48V system AS232 Communication 12V724W48V system Post Communication 12V724W48V system <tr< td=""><td></td><td></td><td></td><td colspan="3"></td></tr<> | | | | | | | |
| System S | Output Ripples(peak) | | 200mV | 200mV | | | |
| Charge voltage Peak-Peak Ripple System Charger voltage accuracy System S | Output Voltage Stability Presision | 12V/24V/48V | -±1 E0/ | | | | |
| Charge voltage excuracy 12V/24V/48V | Output Voltage Stability Precision | | S±1.5% | | | | |
| Charger voltage accuracy 12V/2AV/48V Secting Control Sect | Charge voltage Peak-Peak Ripple | | 200mV | | | | |
| Controller or LAN | | | | | | | |
| Bischarge characteristic Controller or LAN | Charger voltage accuracy | | ≤±1.5% | | | | |
| Setting Control Controller or LAN Max discharge current Discharge protection Discharge control Discharge control Discharge voltage protection Discharge protection D | Discharge characteristic | - 7 | | | | | |
| Max discharge current System 12V/24/48V 5ystem 12V/24/48 | | Contro | ller or LAN | | | | |
| Discharge protection Discharge voltage control Discharge voltage protection Disch | | | | | | | |
| Dusble-time control 12V/24/V48V System Sy | Max discharge current | | 40A | | | | |
| Double-time control 2V724V/48V System DN / OFF PV voltage control 2V724V/48V System PV voltage control 2V724V/48V System PV voltage on[PV voltage off PV voltage on[pV voltage on[pV voltage off PV voltage on[pV voltage on[pV voltage off PV voltage on[pV voltage o | Discharge protection | | fuse 30A*2 | | | | |
| Double-cirile control System On In Morning, on In Morning On In Mornin | | | | | | | |
| ON / OFF mode 12/2/4/V48V System Sys | Double-time control | | On in morning | ,off in morning / On in ni | ght ,off in night | | |
| System PV voltage control 12V/24V/48V System PV voltage on the delay control 12V/24V/48V System PV voltage protection 12V/24V/48V System PV voltage protection 12V/24V/48V System PV voltage on the it under setting voltage; Factory set is 10.5. (Note: set based on 1 battery) Discharge voltage protection 12V/24V/48V System PV voltage on the it under setting voltage; Factory set is 10.5. (Note: set based on 1 battery) Chose COM communication 12V/24V/48V System Protection Input Low Voltage Protection Input Low Voltage Protection Input Overvoltage Protection Input Polarity Reversal Protection Input Polarity Reversal Protection Untput Overvoltage Protection Untput Overvoltage Protection Input Polarity Reversal Pr | | | | | | | |
| System S | ON / OFF mode | | ON / OFF | | | | |
| Violtage / time delay control System System Discharge voltage protection 12V/24V/48V System Discharge voltage protection Discharge pro | PV voltage control | 12V/24V/48V | P\/ voltage on[| IPV voltage off | | | |
| PV voltage onlytime delay control System Discharge voltage protection Discharge voltage protection Discharge voltage protection System Voltage onlytime delay off Discharge voltage; Factory set is 10.5. (Note: set based on 1 battery) Discharge voltage; Factory set is 10.5. (Note: set based on 1 battery) Discharge voltage; Factory set is 10.5. (Note: set based on 1 battery) Discharge voltage; Factory set is 10.5. (Note: set based on 1 battery) Discharge voltage; Factory set is 10.5. (Note: set based on 1 battery) Check the input characteristics Discharge voltage Protection Input Deveroltage Protection Input Overoltage Protection Input Overoltage Protection Input Deveroltage Protection Input Deveroltage Protection Output Verortage Protection Output Abards Protection Input Deveroltage Protection Output Overoltage Protection Ves 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 440dB 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 materias. Compliance with EU standards. All rated temperature of electrolytic capacitors not less than 105°C Smell Environment Protection Meet the 2002/95/EC,no cadmium hydride and fluoride Provision Provision Blue/Green (optional) Safety C, RoHS, PSE,FCC EMC ENG1000 ENG(B) 3.6 ENG(B) 3.6 ENG(B) 3.6 ENG(B) 5.70 ENGenerature O-90%RH (no condense) Operating Temperature 40°C ~ +75°C | V Voltage Control | | i v voitage on | Ji v voitage on | | | |
| Discharge voltage protection 12V/24V/48V System | PV voltage / time delay control | | PV voltage on | Itime delay off | | | |
| Dutput on when it under setting voitage; Factory set is 10.5 (Note : Set based on 1 Dattery) communication Features R5232 Communication LAN Communication LAN Communication Protection Input Low Voltage Protection Input Overvoltage Protection Input Overvoltage Protection Input Overvoltage Protection Input Overvoltage Protection Input Polarity Reversal Protection Input Polarity Polarity Reversal Protection Input Polarity Reversal Protection Input Polarity Reversal Protection Input Polarity Reversal Protection Input Polarity Reversal Protection Polarity Reversal Prot | | | + | | | | |
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| System S | RS232 Communication | System | Chose COM co | mmunication | | | |
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| 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 | | | , 2302 | <u> </u> | | | |
| 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 | | | 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 | N.G(kg) | | 3 | | | | |
| 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 | | | | | | | |
| 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 | | | | | | | |
| EMC EN61000 Type of Mechanical Protection IP21 Environment O~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 | | | | | | | |
| Environment Humidity $0\sim90\%$ RH (no condense) Altitude $0\sim3000$ m Operating Temperature $-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$ Storage Temperature $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$ | | | | | | | |
| Altitude $0\sim3000\mathrm{m}$ Operating Temperature $-20^\circ\mathrm{C}\sim+40^\circ\mathrm{C}$ Storage Temperature $-40^\circ\mathrm{C}\sim+75^\circ\mathrm{C}$ | | | | | | | |
| Operating Temperature $-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$ Storage Temperature $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$ | Humidity | 0~90% | RH (no condens | e) | | | |
| Storage Temperature -40°C ~ +75°C | | | | | | | |
| | | | | | | | |
| Atmospheric Pressure 70~106kPa | | | | | | | |
| | | | | | | | |

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



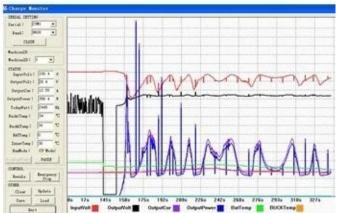


The interface of upper computer software working state

The interface of upper computer software parameter setting state

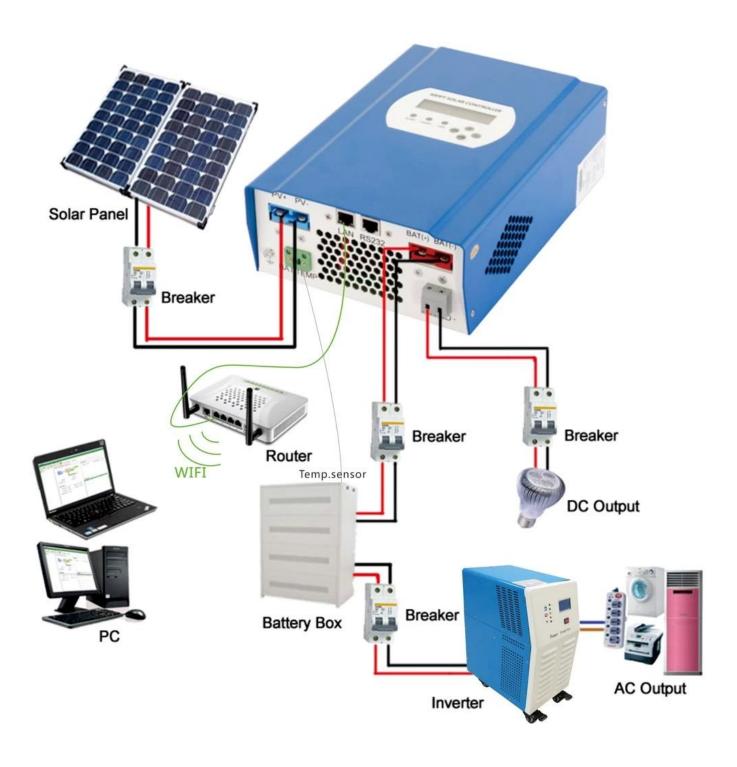


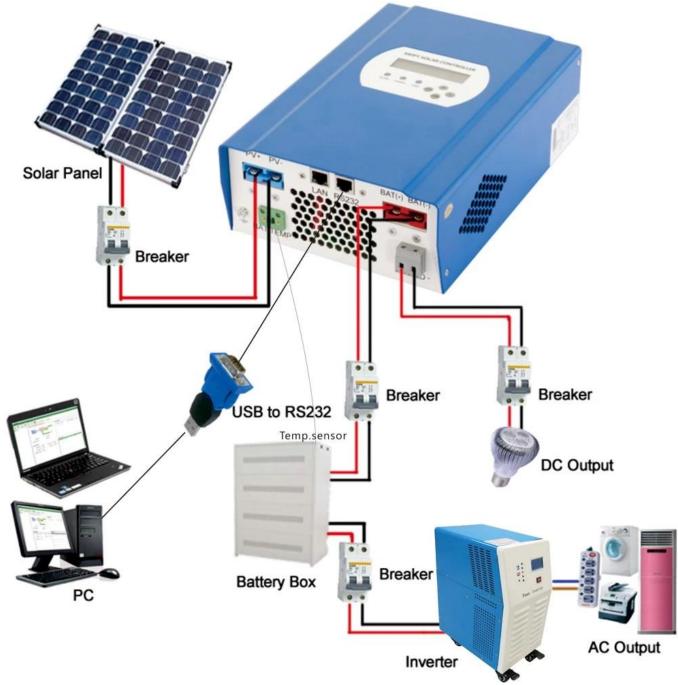
Upper computer software on/off interface and generating capacity record clean interface



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.