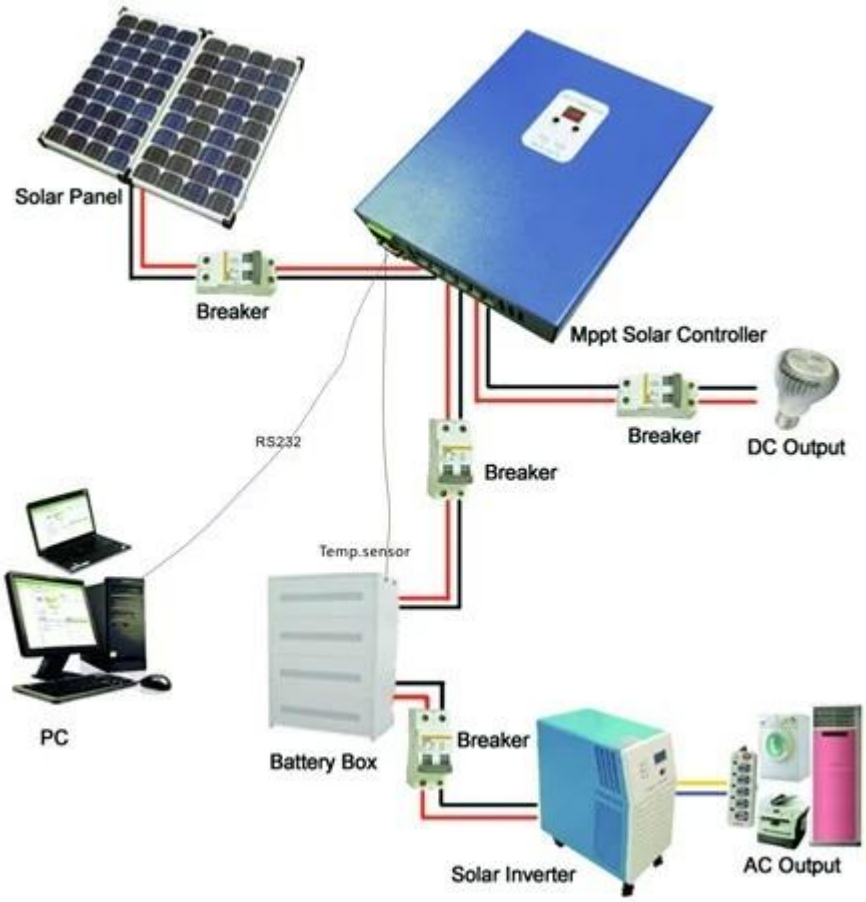
- **The Connection diagram:**



- **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. CE and RoHS Certifications 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
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~DC15V
	24V system	DC18V~DC30V
	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%,≤99%
INPUT CHARACTERISTICS		
MPPT working voltage range	12V system	DC14V~DC100V
	24V system	DC30~DC100V
	48V system	DC60~DC100V
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

Maximum PV power	12V system (W)	213
	24V system (W)	426
	48V system (W)	852
CHARGE CHRECTRESTICS		
Selectable Battery Types (Default Gel battery)	12V/24V/48V system	Sealed lead acid, Vented, Gel, NiCd battery (Other types of the batteries also can be defined)
Constant Voltage	12V/24V/48V system	Please check the charge voltage according to the battery type form.
Floating Charge Voltage	12V/24V/48V system	
Rated Input Current	12V/24V/48V system	15A
Current-limit Protection	12V/24V/48V system	20A
Temperature Factor	12V/24V/48V system	±0.02%/℃
Temperature Compensation	12V/24V/48V system	14.2V-(The highest temperature-25℃)*0.3
Output Ripples(peak)	12V/24V/48V system	200mV
Output Voltage Stability Precision	12V/24V/48V system	≤±1.5%
Output Discharge Characteristics		
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		Controller button or PC software
Display		
LED digital tube display		Battery voltage, Charge current
LED light display		Charging indicator light, LOAD indicator light
PC communication port		RS232
Protection		
Low input voltage protection		Check the input characteristics
High input voltage protection		Check the input characteristics
Charge overpower protection		yes
Discharge low voltage protection		yes
Discharge high current protection		yes
Temperature protection		yes
Other Parameters		
Noise		≤40dB
Thermal heat-dissipating method		Itself cooling / Fan cooling
Components		Imported material With EU standards.
Certification		CE\FCC\RoHS
Physical		
Measurement D x W x H(mm)		205*168*60
package size D x W x H(mm)		265*196*110
N.G(KG)		1.8kg
G.N(KG)		2kg

Mechanical Protection	IP25
Environment	
Humidity	0~90%RH (no condense)
Altitude	0~3000m
Operating Temperature	-20℃ ~ +50℃
Storage Temperature	-40℃ ~ +75℃
Atmospheric Pressure	70~106kPa

Remarks

1. The specification is only for reference. Subject to change without prior notice
2. We provide OEM and ODM service. The 36V/72V/96V model also can be customized for you.

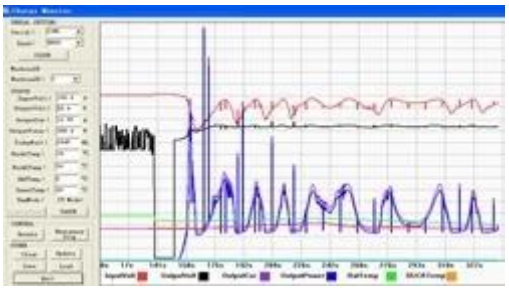
- Products Package

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**

1. Controller PC upper software and testing software can display information. Users can set parameters via PC upper software.

Graphical: PC upper software



Graphical: testing software

1.1 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.

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

2. Information display and parameter setting.

Figure 2.1

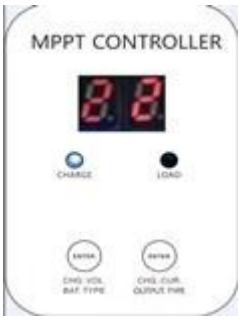


Figure 2.2

2.1 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.)

2.2 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.

- Other detailed parameters

Please see the outline of the design, technical documents, user manuals etc.

Research and development department made 2th version on May 5, 2014.