



## Introduction

This is a MPPT (maximum Power Point Tracking) smart solar controller, with charging and discharging function, increasing 30%~60% efficiency than traditional PWM controller. It has automatic recognition function, three Stages charging function, also supports many kinds of battery charging and discharging, RS232 communication etc, It's our company's MPPT solar controller e-SMART series.

## 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 would like to use in different system conveniently.
3. DC12V/24V/48V system, maximum PV input voltage up to DC100V.
4. Charge type: three stages charge fast charge(MPPT), constant voltage, floating charge, protected our battery, lead to a long use age.
5. Discharge type owns always on pattern and always off pattern, it also has PV voltage solar controlling switch pattern.
6. Clients can auto select any one in the 4 kinds of commonly used batteries, Sealed lead acid, vented, Gel, NiCd and custom other batteries.
7. Digital tube display controller battery voltage and charging current,upper computer display various parameters, such as model, PV input voltage, battery types, battery voltage, charging current, charging power, working condition etc.
8. RS232 communication, and that providing communication protocol, it's convenient for customer's integration management.

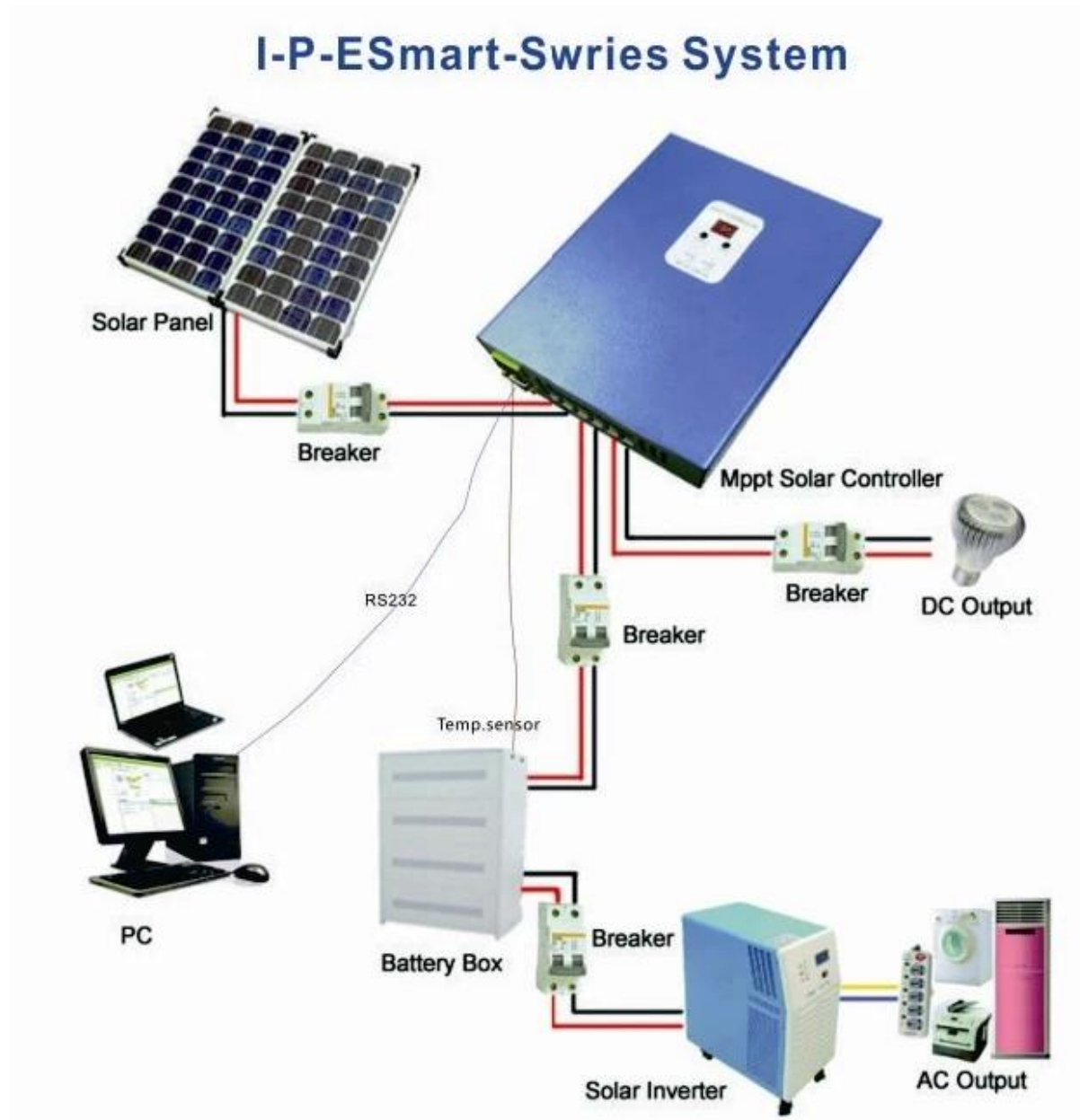
9. This controller could be paralleled infinitely.
10. CE, RoHS Certifications approved; cooperating with clients through the other certifications.
11. 2 years warranty; 3~10 years extended technical service.

## Parameters

MPPT solar controller modes□ I-P-e-SMART-12V/24V/48V-series		30A
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 and range	12V/24V/48V system	500us
MPPT efficiency	12V/24V/48V system	≥96.5%,≤99%
<b>INPUT CHARACTERISTICS</b>		
MPPT working voltage and Range	12V system	DC14V~DC100V
	24V system	DC30~DC100V
	48V system	DC60~DC100V
Low voltage input Protection point	12V system	DC14V
	24V system	DC30V
	48V system	DC60V
Low voltage input Recovery point	12V system	DC18V
	24V system	DC34V
	48V system	DC65V
Input over voltage protection point	12V/24V/48V system	DC110V
Input over voltage recovery point	12V/24V/48V system	DC100V
Maximum PV power	12V system (W)	426
	24V system (W)	852
	48V system (W)	1704
<b>CHARGE CHRECTRESTICS</b>		
Selectable Battery Types (Default type is 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	30A	
Current-limiting Protection	12V/24V/48V system	35A	
Temperature Factor	12V/24V/48V system	±0.02%/°C	
Temperature Compensation	12V/24V/48V system	14.2V-(The highest temperature-25°C)*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; custom available ;	
Rated output Current		30A	
The output control		Always on, always off, PV voltage control switch	
Output control set mode		Controller button or upper computer	
Display			
LED digital tube display		Battery voltage, charge current	
LED light display		Charging indicator light, LOAD indicator light	
PCcommunication port		RS232	
Protection			
Input Low Voltage Protection		Check the input characteristics	
Input Overvoltage Protection		Check the input characteristics	
Charge over voltage power Protection		yes	
Low Voltage output Protection		yes	
Rated output 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	
Type of 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	

## Connection diagram



## Certification



# Certificate Of Compliance

Certificate Number: UNI2014041001EC-1

**Applicant** : Shenzhen I-Panda New Energy Technology & Science Co., Ltd.  
Bolck H, Juyin Technology Industrial Park, Buji Street, Longgang District,  
Shenzhen, China.

**Manufacturer** : Shenzhen I-Panda New Energy Technology & Science Co., Ltd.  
Bolck H, Juyin Technology Industrial Park, Buji Street, Longgang District,  
Shenzhen, China.

**Product** : MPPT SOLAR CHARGER CONTROLLER

**Trade Name** : I-PANDA

**M/N** : SMART 60A, SMART10A, SMART 15A, SMART 20A, SMART 25A,  
SMART 30A, SMART 40A, SMART 50A

**Test Standard:** EN55022:2010  
EN55024:2010  
(EN61000-4-2:2009, EN61000-4-3:2006+A2:2010)

The EUT described above has been tested by us with the listed standards and found in compliance with the council EMC Directive 2004/108/EC. It is possible to use CE marking to demonstrate the compliance with EMC Directive.

The certificate applies to the tested sample above mentioned only and shall not imply an assessment of the whole production. It is only valid in connection with the test report number: UNI2014041001ER-1.

2014-04-10

Date of issue



**United testing technology (Hong Kong) Limited**  
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## FCC VERIFICATION of CONFORMITY

Certificate Number: UNI2014041001FC-1

We herewith confirm the following designated product:

**MPPT SOLAR CHARGER CONTROLLER**

**Trade Name: I-PANDA**

**MODEL Number:**

**SMART 60A, SMART10A, SMART 15A, SMART 20A, SMART 25A,  
SMART 30A, SMART 40A, SMART 50A**

(Product Identification)

has been tested and found in compliance with the requirements of 47 CFR PART 15 regulation & ANSI C63.4 for the evaluation of Class A of electromagnetic compatibility. It is only valid in connection with the test report number: UNI2014041001FR-1.

This device complies with Part 15 of the FCC rules, operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received,  
including interference that may cause undesired operation.

(Identification of regulations/standards)

This declaration is the responsibility of the manufacturer/importer

**Shenzhen I-Panda New Energy Technology & Science Co., Ltd.  
Bolck H, Juyin Technology Industrial Park, Buji Street, Longgang  
District, Shenzhen, China.**

(Name /Address)

MANUFACTURER / IMPORTER



\_\_\_\_\_  
Name

\_\_\_\_\_  
Date

TEST LABORATORY

This is the results of test that was carried out by UNI. from the submitted type samples of the product is in conformity with the specification of the respective standards.

The certificate holder has the right to fix the FCC-mark on the product complying with the required rules.



2014-04-10

\_\_\_\_\_  
Date of issue

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# Certificate Of Compliance

Certificate Number: UNI2014041001RC-1

**Applicant** : Shenzhen I-Panda New Energy Technology & Science Co., Ltd.  
Bolck H, Juyin Technology Industrial Park, Buji Street, Longgang District,  
Shenzhen, China.

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**Trade Name** : I-PANDA

**Model Number** : SMART 60A, SMART10A, SMART 15A, SMART 20A, SMART 25A,  
SMART 30A, SMART 40A, SMART 50A

Test Standard: IEC62321:2013

The EUT described above has been consolidated by us and found in compliance with the council  
RoHS Directive 2011/65/EU. It is only valid in connection with the test report number:  
UNI2014041001RR-1.

2014-04-10

Date of issue



# RoHS

**United testing technology (Hong Kong) Limited**  
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