КОНТРОЛЕР ЗАРЯДУ

HORS

SC-MPPT 12/24/48 (30A)

КЕРІВНИЦТВО КОРИСТУВАЧА

CE FC CB RoHS
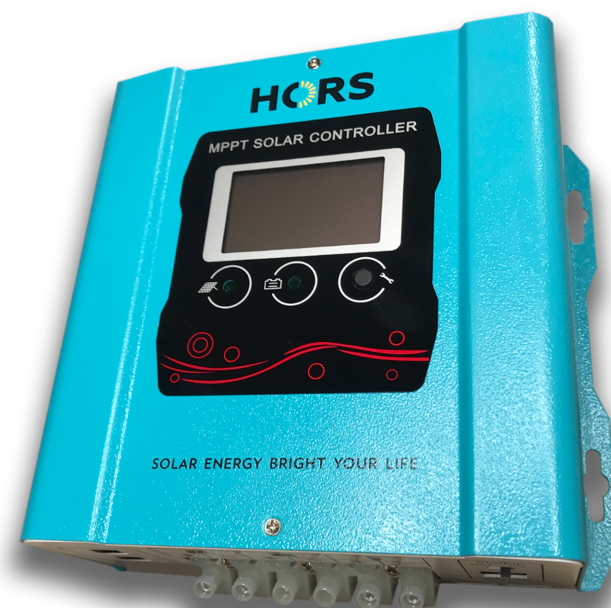
Introduction

This manual contains the contents the contents of the installation, operation and usage of the controller .Please read it carefully before installation. Professionals should be responsible for the equipment operating in order to make sure normal running of the controller .Please take good care of this manual for future reference whenever necessary. The followings are some symbols used in this manual:

Symbol and signs

Following symbol and signs will be used in the manual

⚠ Warning

If you violate the operation rules, it would endanger personal safety, affect the reliability of the equipment or cause loss of date;

⚠ Danger

If you violate the operation rules, it would endanger personal safety, affect the reliability of the equipment or cause loss of date;

ⓘ Attention

▶ Indicating additional data and information.

Contents

1. Notes on This manual

This manual describes how to install and service your Aims Power

MPPT solar charge controller.

1.1 Validity

This manual applies to MPPT solar charge controller models

produced by our company:

1.2 Target Group

This manual is intended for the installer and the operator.

1.3 All manual for the device and installed components must be

stored in the immediate vicinity of the charge controller and must

be accessible an all time

1.4 Symbols Used

The following types of safety messages and general information

appear in this document:

⚠ **Warning**

WARNING indicates a hazardous situation which, if not avoided, could

result in machine stoppage or serious injury.

⚡ **Warning**

WARNING indicates a hazardous situation which, if not avoided, could

result in machine stoppage or serious injury.

ℹ **Note!**

In order to operate this device well, please read the operation

instructions carefully

2. Safety instructions

2.1General Safety Instructions

⚠ **Warning**

The input voltage of this device may be extremely high and life

threatening.

●All work on the charge controller must only be carried out by an
electrically skilled person.
●The controller is not to be used by children or persons with reduced
physicalsensory or mental capabilities, or lack of experience and
knowledge, unlessthey have been give supervision or instruction.
Children should be supervised to ensure that they do not play with the
controller.

⚠ **Caution!**

Surface may be extremely hot and may cause burns.
Do not touch the enclosure of the charge controller during operation.
If possible keep in a cool environment.

⚠ **Caution!**

Unit may emit some radiation which may be harmful.
Do not stay within 1 foot of controller for any extended period of time.

2.2 Explanation of symbols

Below is the explanation for all the symbols shown on the device and
label

Symbol	Explanation
⚡	Risk of electric shock Energy stored in capacitors will remain for 5 minutes; don't touch within this period after disconnecting. Both input and output lines have power, disconnect both and don't operate for at least 5 minutes after disconnection.
⚠	No self-serviceable parts are inside the enclosure, don't attempt to remove the cover. Only qualified persons are permitted to operate and maintain the equipment. Only insulated tools are permitted for use to reduce risks of hazard to individuals.
♨	Beware of hot surface. The solar charge controller can become hot during operation. Avoid contact during operation. Never put any goods onto the controller.

● Symbols on the Type Label

Symbol	Explanation
CE FCC CB ROHS (logos)	CE FCC CB ROHS mark ; The device complies with the requirements of the applicable CE FCC CB ROHS guidelines.

● Important Safety Instructions
When using the product, please do remember the below information to avoid fire, lighting or other personal injury:

⚠	**Warning!** Ensure input DC voltage no more than Max. DC voltage .Over voltage may cause permanent damage to solar charge controller or other losses, which will not be covered by the warranty! This chapter contains important safety and operating instructions. Read and keep this operation guide for future reference.
⚠	**Warning!** Authorized service personnel must disconnect both DC and battery bank power from the solar charge controller before attempting any maintenance or cleaning or working on any circuits connected to the solar charge controller.

● Before using the solar charge controller please read all instructions and cautionary markings on the solar charge controller, and all corresponding sections of this guide.
● Contact I-Panda for any questions or concerns about your controller. Trying to modify or repair it may result in a fire, electric shock, or injury.
● To reduce a risk of fire and electric shock, make sure that existing wiring is in good condition and that all wire is properly sized. Do not operate the solar charge controller with damaged or substandard wiring.
● Do not disassemble the solar charge controller. It contains no user -serviceable parts. See warranty for instructions on obtaining service. Attempting to repair the solar charge controller by yourself may result in a risk of electric shock or fire and will void your warranty
● To reduce the risk of electric shock, authorized service personnel must use insulating tools when connecting or working on the controller.
● Keep away from flammable, explosive materials to avoid fire.
● If at all possible keep away for excessively humidity to avoid corrosion.
● To reduce the chance of short-circuits , authorized service personnel must use insulated tools when installing or working with this equipment.

3. Unpacking
3.1 Parts list:

Object	Quantity	Description
A	1 unit	Charge controller
B	1 pce	Manual

If there is any parts missing, please contact your dealer.

4. Assembly
4.1 Operator: technical personnel;
4.2 Selecting the Mounting Location

⚠ **Danger**

Possible fire and explosion hazard.
The charge controller enclosure can become hot during operation.
● Do not mount the charge controller on flammable construction material.
● Do not mount the charge controller near highly flammable materials
● Do not mount the charge controller in potentially explosive areas.
● Do not mount the charge controller to direct sunlight to avoid power loss due to overheating

⚠ **Caution:**

Enclosure may become hot to the touch and may cause burns.
● Mount the charge controller in such a way that it cannot be touched inadvertently during operation
4.2.1 Installation Dimensions
　　20A Series L*W:126mm*207mm
　　30A Series L*W:190mm*207mm
　　60A Series L*W:225mm*207mm
4.2.1Net weight
　　Weight: 20A Series 1.6Kg ，30A Series 1.8Kg ，60A Series 2.2Kg
4.2.3Ambient Conditions
● The mounting location and method must be suitable for the weight and dimensions.
● Mount on a solid surface.
● The charge controller must be easy to remove from the mounting location at any time.
● The ambient temperature should be beteen-4 and 140F(-20 and 60℃)

5. MPPT Controller Connection
5.1 Safety

⚠️ **Danger**

High voltages are present and dangerous.
● Disconnect the PV array using a disconnection unit and secure it against accidental reactivation.
● Disconnect the circuit breaker and ensure that it cannot be reconnected.
● Ensure that no voltage is present in the system.

⚠️ **Warning**

Risk of in jury due to electric shock.
If all cables with different voltages are routed in parallel, damaged cable insulations may lead to a short circuit.
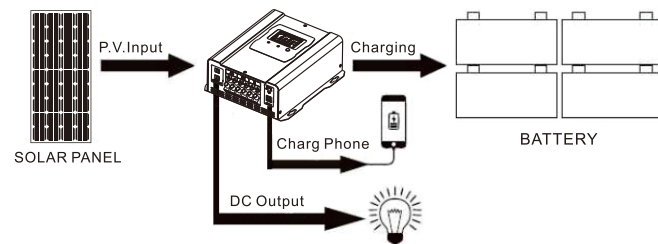● Route all cables separately if possible.

⚠️ **Warning**

Over voltage can destroy the system.
● Use an external over voltage protector in areas with an increased risk of lightning.

5.2 Connections of the PV power system

SOLAR PANEL   P.V.Input   Charging   Charg Phone   DC Output   BATTERY

5.2.1 PV String

Solar panels may be connected in series or in parallel. Open-circuit voltage (Voc) of module arrays connected in series should in series should be less than Max. DC input voltage (150V) of the charge controller; operating voltage (V max) should conform to MPPT voltage range.
Please use PV cable to connect modules to the charge controller. It should be outdoor uv rated and we recommend 10Awg to prevent excessive losses due to distance. It is beneficial to increase the DC voltage to optimize performance and decrease inefficiencies.

⚠️ **Warning**

PV module voltage may be very high! Electrical shock and fire may result due to improper connections. Please comply with electric safety rules when connecting.

5.2.2 The voltage and type of battery

(1) This controller can charge DC: 12V, 24V and 48V battery systems. It will automatically recognize the system voltage.
(2) The controller had been programmed to properly charge 4 battery types.
(3) See chart below. Any other may be programmed using included software

Selected Battery Type						
Battery Type	Bulk voltage			Floating Voltage		
	12V	24V	48V	12V	24V	48V
Sealed Lead	14.0V	28.0V	56.0V	13.8	27.6V	55.2V
Gel	14.2V	28.4V	56.8V	13.8	27.6V	55.2V
Open Lead	14.6V	29.2V	58.4V	13.8	27.6V	55.2V
Battery type is defaulted to Sealed Lead. To change use the keypad on the display.						

5.2.3 DC direct load and max current:

The load voltage is based on the battery system voltage. A 48Vdc battery bank will make the load output 48Vdc etc.
1)Output Load control:
The Load output may be controlled in 4 different ways. It may be programmed through the charge controller .
Modes: Light and Time Control Mode / Pure Light Control Mode / Normally-On Mode / Normally-Off Mode.

5.2.4 MPPT controller work step

ℹ️ Caution: Please follow the steps to ensure pro per programming.
Step 1: Close the battery breaker or make connection with the battery bank. Some led's and the lod should illuminate.
Step 2: Now make the PV connection. If the PV module voltage is in the charging range, then the controller will stark to work.
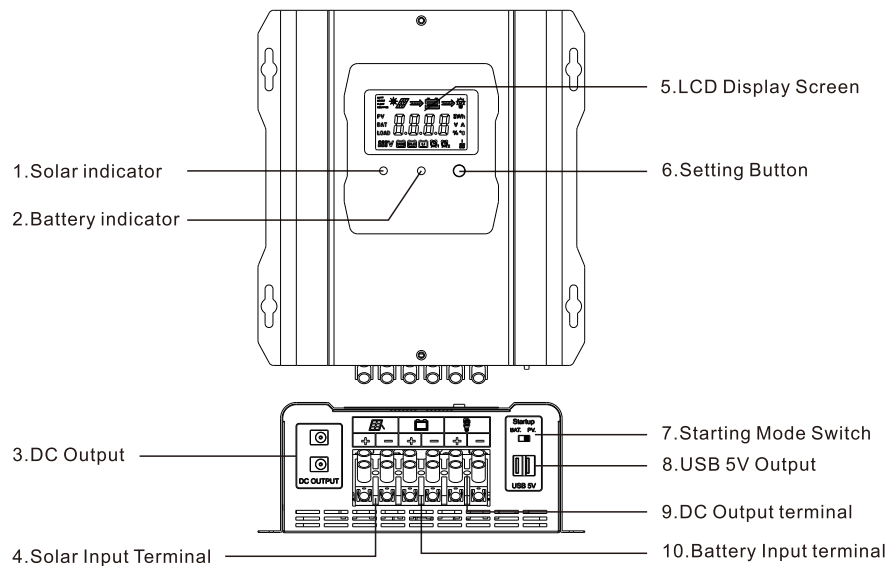Step 3: If the DC load will be use ,set to proper settings and make the connection.

5.2.5 Steps for Proper Shutdow

ⓘ Caution: follow the steps for shutdown to avoid damage
Step 1 : open the PV breaker to disconnect panels from controller.
Step 2 : Open the battery breaker or disconnect controller from battery bank. This will completely shut the controller to off.

⚠ Warning:
NEVER disconnect the battery while charging. This will cause permanent damage to the controller and is not covered under the warranty. Always disconnect PV panels first.

6. LED/LCD and Function Key
6.1 Panel Description

5.LCD Display Screen

1.Solar indicator

2.Battery indicator

6.Setting Button

3.DC Output

4.Solar Input Terminal

7.Starting Mode Switch
8.USB 5V Output
9.DC Output terminal
10.Battery Input terminal

Meaning of LED and function key
Solar indicator (Yellow)
------ Charging status indicator

Battery indicator (Green)
------ Battery status indicator

Setting Button
------ Page and Confirm the Key
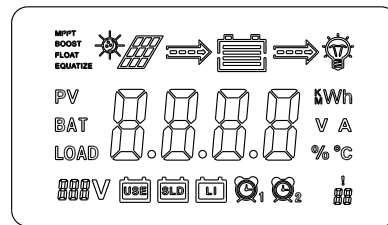
LCD Display

7.Input and Output Terminal
7.1 Display Screen Description
◆1.Solar indicator(Yellow) -------------- Charging status indicator
When have solar charging working ,LED is flashing .If no solar ,LED off .
When the battery is full charging ,LED keep normally on .
◆2.Battery indicator(Green) ------------ Battery status indicator
When the battery capacity is normal ,LED keep normally on .
When the battery capacity is over charging ,LED is flashing .
When the battery capacity is over discharging ,LED off.
◆3.DC Output:
Here can easily connect 2Amp DC lamp ,but you should pay attention to the system voltage .If you need this function ,please use the 12V battery system .
◆4.Solar Input terminal:
Here can connect solar panel ,please pay attention to the positive and negative .
◆5.LCD Display Screen:
Users can easily query the solar controller working status information .
When no button operation ,running 3 minutes late ,the back-light automatically turn off .If have button operation ,the back-light automatically turn on .
◆6.Setting Button:
If users want change CV voltage for battery charge ,light and time control for DC out .Users can press setting button for 3 seconds to enter setting page ,and then continue to flip set parameters choice ,the last again press setting button for 3 seconds to save the selected parameters ,and then automatic exit to the default page .
◆7.Starting Mode Switch:
If select the PV. position , must be have solar to starting the controller , when no solar and low battery capacity at the same time ,will automatically turn of the controller .when again have solar energy , controller will automatically turn on .
If select the BAT. position ,when the battery capacity is normally ,will automatically turn on the controller .
◆8.USB 5V Output:
Here can supply 1Amp current charging mobile phone .
◆9.DC Output terminal:
Here can connect DC load ,output current is the same as the charging current .At the same time you should pay attention to the system voltage ,because DC output voltage is the same as the system battery voltage.
◆10.Battery Input terminal
Here can connect battery bank ,please according to the product model , connect accuracy battery series number .
This controller can charge DC: 12V 24V and 48V battery systems.
It will automatically recognize the system voltage.

8.Modes introduction and setting table
8.1 Solar Charge series controller with 4 kinds of working modes, and 3 kinds of battery CC mode charging voltage ,the setting table as below .

8.11 CC Charging voltage setting(14.0～15.0) The user can according to the battery type ,set different CC mode charge voltage .

8.12 Pure light control(d-00) when without sunshine ,light intensity drop to starting point ,the controller will delay 10 seconds to confirm the start signal ,turn on the load according to the setting parameter , load start working .when with sunshine , the light intensity rise to starting point ,the controller will delay 10 seconds to confirm the close signal ,and turn off the DC output ,the load stop working.

8.13 Light control +time control(2～8) The start process same as pure light control , the load will turn off automatically when working reach the setting time .the setting time is 2～8 hours .

8.14 Normally-On Mode(OUL) The load keep on output status ,this mode suitable to the load working 24 hours .

8.15 Normally-Off Mode(OFF) The load keep off output status .

LCD Display Screen	Function Specifications
14.0 ～15.0	The battery CC Mode charge voltage range can be set up
H 2-0	Light and time control 2 hours after darkness
H 4-0	Light and time control 4 hours after darkness
H 6-0	Light and time control 6 hours after darkness
H 8-0	Light and time control 8 hours after darkness
H 3-1	Light and time control 3 hours after darkness+ 1 hours before daybreak
H 4-1	Light and time control 4 hours after darkness+ 1 hours before daybreak
H 5-1	Light and time control 5 hours after darkness+ 1 hours before daybreak
H 6-1	Light and time control 6 hours after darkness+ 1 hours before daybreak
H 3-2	Light and time control 3 hours after darkness+ 2 hours before daybreak
H 4-2	Light and time control 4 hours after darkness+ 2 hours before daybreak
H 5-2	Light and time control 5 hours after darkness+ 2 hours before daybreak
H 3-3	Light and time control 3 hours after darkness+ 3 hours before daybreak
d — 00	Pure light control mode
OUL	Normally-On mode
OFF	Normally-Off mode

8.2 Smart Charge Modes
This controller has 3 mode: Constant charging stage (CC Mode)
Constant voltage charging stage (CV Mode), Floating charge Stage (CF Mode)
In CC Mode the blue led flashes every second.
In CV Mode the blue led flashes every seconds.
In CC Mode the blue led stays on.

9.Storage and Disposal
9.1 Store the charge controller in a place with ambient temperatures between -40℃and +75℃.
9.2 Disposal
Dispose of the solar charge controller at the end of its service life in accordance with the disposal regulations for electronic waste which apply at the installation site at that time.

10.Recovery Processing and Warranty
10.1Recovery Processing
When the controller abnormal,please check the following question and contact our customer service representative.

10.2 Controller failure mode:
Please check the fault tips in the failure mode,and then proceed to the appropriate troubleshooting.
10.3When the controller does not start properly;
◆Check the controller external solar solar panels with the correct polarity.
◆Check Battery Connection.
◆Check Battery.
◆Check circuit breaker.
◆Check internal fuse.
In the problem persists,please contact customer service.Please offer the following information;Equipment information;
Model,Order No,serial-number(Stickers on the rear plate).
Detailed description of the problem
(Type of system,occasionally/frequent problems,indicator light,data display,and so on).
10.4 Warranty
 Within the warranty period,it is free to repair for the non-human fault, Otherwise,the cost of repairs would be charged.

РЕЖИМ ЗАРЯДКИ		MPPT				
МЕТОД ЗАРЯДКИ		ТРИСТУПЕНЕВА (MPPT) ПОСТІЙНИ СТРУМ, ПОСТІЙНА НАПРУГА, ПЛАВАЮЧА НАПРУГА				
НАПРУГА АКБ	12/24/48V	АВТОВИЗНАЧЕННЯ				
ЧАС ПЛАВНОГО ПУСКУ	12/24/48V	≦10S				
ДИНАМІЧНИЙ ВІДГУК ЧАСУ ВІДНОВЛЕННЯ	12/24/48V	500us				
ЕФЕКТИВНІСТЬ MPPT	12/24/48V	≧99%				
КОНВЕРСІЙНА ЕФЕК-НІСТЬ	12/24/48V	≧97%				
ВХІДНІ ХАРАКТЕРИСТИКИ						
ДІАПАЗОН РОБОЧОЇ НАПРУГИ MPPT	12V	DC15～150V				
	24V	DC30～150V				
	48V	DC60～150V				
МАКС. ВХІДНА НАПРУГА ФЕМ	12/24/48V	DC155V				
МАКС. ПОТУЖНІСТЬ ФЕМ	12V	300W	450W	600W	750W	900W
	24V	600W	900W	1200W	1500W	1800W
	48V	1200W	1800W	2400W	3000W	3600W
ХАРАКТЕРИСТИКИ ЗАРЯДКИ						
ВИБІР ТИПУ АКБ	12/24/48V	14.0V～15.0V (ОПЦІОНАЛЬНО)				
ПОСТІЙНА НАПРУГА	12/24/48V	ДИВ. ТАБЛИЦЮ ПАРАМЕТРІВ ЗАРЯДКИ РІЗНИХ ТИПІВ АКБ				
НАПРУГА ПЛАВАЮЧОГО ЗАРЯДУ	12/24/48V					
НАПРУГА ЗАХИСТУ ВІД ПЕРЕЗАРЯДКИ	12V	15.0V				
	24V	30.0V				
	48V	60.0V				
НОМІНАЛЬНИЙ СТРУМ ЗАРЯДКИ	12/24/48V	20A	30A	40A	50A	60A
ТОЧКА ЛІМІТУ ПЕРЕТОКУ	12/24/48V	22A	35A	45A	55A	65A
ТЕМПЕРАТУРНИЙ ФАКТОР	12/24/48V	±0.02%/C				
ТЕМПЕРАТУРНА КОМПЕНСАЦІЯ	12/24/48V	14.0V - найбільша температура - 25°C *0.3				
ПІК ПУЛЬСАЦІЇ НАПРУГИ ЗАРЯДУ	12/24/48V	200mV				
ТОЧНІСТЬ НАПРУГИ ЗАРЯДКИ	12/24/48V	≦±1.5%				

ВИХІДНІ ХАРАКТЕ	
НОМІНАЛЬНИЙ СТРУМ ЗАРЯДКИ	12/24/48V
USB ВИХІД	12/24/48V
ВИХІДНА НАПРУГА DC	12/24/48V
ЗАХИСТ ВІД НИЗЬКОЇ НАПРУГИ	12/24/48V
ТОЧКА ВІДНОВЛЕННЯ Я ПО НИЗЬКІЙ НАПРУЗІ	12/24/48V
ВИХІД DC ON/OF	12/24/48V
РОЗМІРИ	СЕ