

## SCC10APWM Solar Charge Controller Installation and Operation Manual

### AIMS POWER

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READ MANUAL BEFORE USING THIS PRODUCT

## 1. PRODUCT INTRODUCTION

This AIMS Power PWM solar charge controller is designed to charge and monitor your LiFePO4 battery to achieve a longer life cycle. It also trickle charges AGM, GEL and lead acid battery technologies. Using the latest charging technologies combined with state of charge monitoring, this product allows for optimal battery maintenance and efficient solar power monitoring. The LCD screen displays operating modes such as; state of charge, voltage, and current. The product also displays symbols for easy user interface.

- ▶ Integrated data logger energy meter
- ▶ Automatic detection of voltage 12 or 24 Vdc
- ▶ PWM control
- ▶ Automatic load reconnection
- ▶ Listed to UL 1741 & CSA 22.2 No. 107.1
- ▶ Adjustable charge voltage

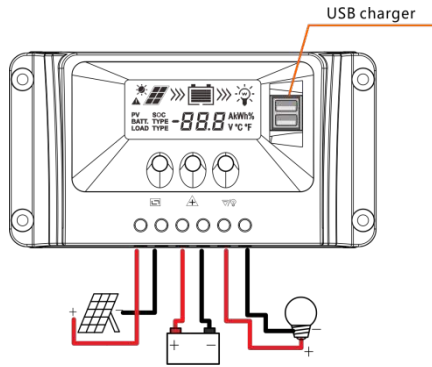
## 2. INSTALLATION

Install the charge controller near the battery on a **stable** surface. This surface should be solid, even, dry and nonflammable. The battery cable should be as short as possible and have a cable diameter size to minimize loss, e.g. 4 mm<sup>2</sup> at 20 A and 6ft in length (16 AWG).

Do not install the controller in direct sunlight.

To ensure adequate airflow around the controller, allow a 4 inch clearance around the unit. The temperature at the installation site may never fall below or exceed the maximum permitted ambient temperature range.

Connect the individual components to the symbols provided on the bottom of controller.



Follow the following connection sequence during installation:

1. Connect the battery to the charge controller - positive and negative
2. Connect the solar module to the charge controller - positive and negative
3. Connect the DC load to the charge controller – positive and negative (optional)

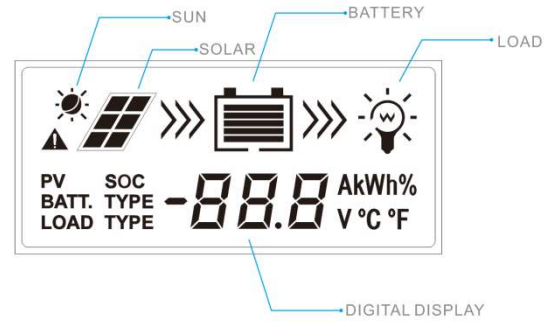
The reverse order applies when uninstalling.

**NOTE! The automatic detection of 12V or 24V systems functions properly only if this sequence order is followed. An improper sequence order can damage the battery!**

**\*There are no user serviceable parts inside the charge controller. Do not disassemble or attempt to repair the unit. Contact manufacturer.**

## 3. OPERATION

### 3.1 Description of LCD symbols

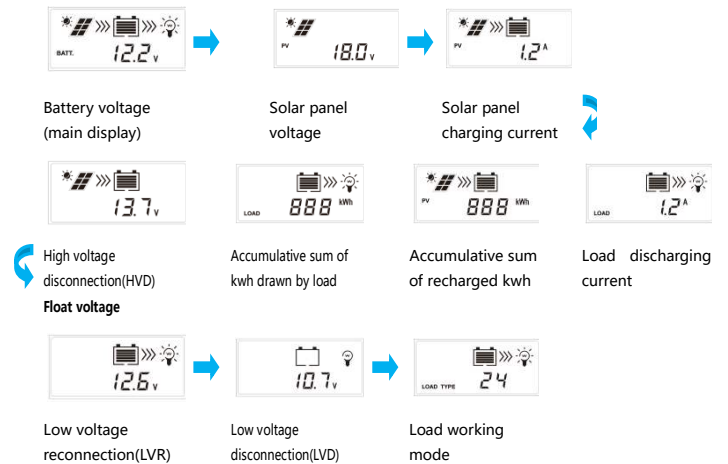


### 3.2 Description of Button Function

- Button for switching display windows ● Enter/exit the setting (press for 5 seconds)
- Adjust parameters up ● Restore factory setting in each parameter (press for 5 seconds)
- Adjust parameters down (minus) ● Click this button to switch the load in main display window

### 3.3 View and Set the Parameters

The controller will auto display the “battery voltage” main display once power is connected (follow correct sequence from INSTALLATION instructions. This is the main display window. Use the button to switch between different display windows. If the parameter can be set, press the button (>5 seconds, numbers start flashing) to enter the setting, then press the or to select the setting, after that, press the button (>5 secs) again to exit the setting (numbers stop flashing).



#### 3.3.1 Battery voltage (main display)

Displays the battery voltage measured by the controller. Also, it displays the charge and discharge status, battery capacity.



#### 3.3.2 The load ON/OFF control

In the main display window, click the button

to ON/OFF the load. The button doesn't have this feature in the other interface.



#### 3.3.3 Environment temperature

Displays the ambient temperature of the controller: °C



#### 3.3.4 Solar panel voltage

Displays the solar panel voltage measured by the controller.



#### 3.3.5 Solar panel charging current

Displays the charging current from the solar panel.




#### 3.3.6 Load discharging current

Displays the discharging current drawn by load.




### 3.3.7 Accumulative sum of recharged Ah

Displays the accumulative sum of recharged Ah from solar panel. Press the button  for 5 seconds to reset the meter to 0. Even when the battery is disconnected the value remains. When 9999Ah are reached, it will switch back to 0 Ah.



### 3.3.8 DC load consumption





Displays the accumulative sum of Ah drawn by the DC load.

Press the button  for 5 seconds to reset the meter to 0. Even when battery is disconnected the value remains. When 9999Ah are reached, it will switch back to 0 Ah.



### 3.3.9 High voltage disconnection (HVD) Float voltage - ADJUSTABLE





Displays the float voltage, when battery voltage reaches float voltage, the controller will start PWM control to keep the battery voltage at same level.

Press the button  (>5 seconds, numbers start flashing) to enter the setting, then press the  or  to select the setting. Press the button  again to exit the setting (numbers stop flashing).



### 3.3.10 Low voltage reconnection (LVR) - ADJUSTABLE

Displays the values for the LVR voltage. Under the LVD protection in the controller, when battery voltage is restored to higher voltage than LVR voltage, the controller will re-connect the load circuit.

Press the button  (>5 seconds, numbers start flashing) to enter the setting, then press the  or  to select the setting. Press the button  again to exit the setting (numbers stop flashing).




### 3.3.12 DC Load operating mode - ADJUSTABLE




As shown on the right, it displays the load operating mode. Different values represent different working modes.

24h - normal mode, there is always output unless the battery voltage is too low.

1-23h - light control with time control mode. Load will turn on after dusk and turn off according to the timer setting.

0h - light control mode, load will turn on after dusk and turn on before dawn.

Press on the button  (>5 seconds, numbers start flashing) to enter the

setting, then press the  or  to select the setting. Press the button  again (>5 secs) to exit the setting (numbers stop flashing).



## 4. COMMON FAULT AND HANDLING

### 4.1 LVD Protection resolution



Screen display as shown in the figure that the battery drops below the LVD protection voltage. The controller has entered the LCD protection state, load circuit has been disconnected. Use the solar panels to recharge the battery or charger when the battery voltage reaches LVR voltage, the controller will resume the load power supply after battery reaches normal working state.



### 4.2 Over load Protection fault resolution

Screen display (see the figure) and flashing shows over load circuit current For 60 seconds at more than 1.5 times the rated current.





Overload protection state. After reducing the load, press the button   to restore power to the load.

### 4.3 Short Circuit Protection fault resolution

Screen display (see the figure on the right) and flashing shows there is a short circuit on the load circuit. The controller has entered into Short Circuit Protection State. Check the load for damage to the wiring circuit.




After troubleshooting and correcting short circuit quick press   button to enable the load.

### 4.4 Solar Panel Fault resolution

Symbol flashing indicates that the controller has not detected the solar panels within 24hours. Check connection from solar panel to charge controller. Also, check if there is an open circuit between solar panel with controller.

### 4.5 Load Shock Fault

Open load if the  flashing, this indicate the load current is more than twice rated current of the controller. This will cause the controller to reset several times.

## 5. WARRANTY

AIMS Power offers a 2 year limited warranty.

The following cases are not covered under warranty.

### 1. DC reverse polarity

The charger is NOT designed with DC reverse polarity protection. A reverse polarity may severely damage the inverter.

### 2. Incorrect DC wiring

### 3. Operation in a moist environment

### AIMS Power Warranty Instructions:

This product is designed using the most modern digital technology and under very strict quality control and testing guide lines. If, however you feel this product is not performing as it should, please contact us: [techsupport@aimscorp.net](mailto:techsupport@aimscorp.net) or (775)359-6703.

We will do our best to resolve your concerns. If the product needs repair or replacement, make sure to keep your receipt/invoice, as that will need to be sent back along with the package and RA# prepaid to AIMS. You have a limited 2 year from date of purchase warranty.

This warranty is valid worldwide with the exception that freight and duty charges incurred outside the contiguous 48 United States will be prepaid by customer.

Except as provided above, AIMS makes no warranty of any kind, express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose. In no event shall AIMS be liable for indirect, special or consequential damages. This warranty only applies to AIMS Power branded products. All other name brand products are warranted by and according to their respective manufacturer. Please do not attempt to return non-AIMS Power branded products to AIMS Power.

For additional products such as:

- Modified sine wave inverters
- Pure sine wave inverters
- Solar charge controllers
- Generators
- Inverter chargers with automatic transfer switches
- Custom cut cables
- Batteries
- Solar panels

Please visit our web site: [www.aimscorp.net](http://www.aimscorp.net)

To find out where to buy any of our products, you may also e-mail: [sales@aimscorp.net](mailto:sales@aimscorp.net) or call (775)359-6703.

## 6. TECHNICAL DATASHEET

Model	SCC10A PWM
Rated current	10A
Rated voltage	12/24V
Max solar voltage	<50V(12/24V)
Low voltage disconnect	10.7/21.4V
Low voltage reconnect	12.6/25.2V
Float charge	13.7/27.4V
Standby loss	<30mA
Material	ABS+Aluminum
USB output	5V/2A
Charging mode	PWM
Temp compensation	-4mV/Cell/°C
Operating condition	-20°C to 60°C   -4°F to 140°F
Size/Weight	6.5L" * 3.5W" * 1.5H" .5 lb