AIMS POWER™

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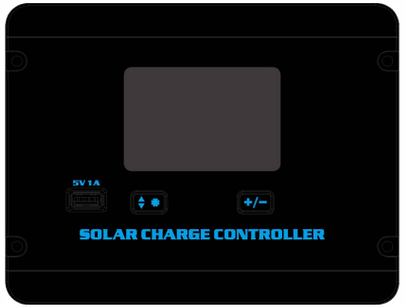
User's Manual



Solar Charge Controller

This device is a PWM 12/24V 30A charge controller used in solar applications. Its flush mount design is ideal for solar power systems in RV's, boats and vehicles. Carefully read the manual before installation.

CONTROLLER FEATURES

1. PCBA common negative design, necessary for all negative grounded solar power systems.
2. 12/24V auto recognition. Lithium battery must be set manually.
3. PWM 3-phase charging: equalize - boost- float (for Flooded, AGM and GEL).
4. User defined parameters for lithium battery.
5. Back lit LCD display (system status, current, voltage, charge status).
6. User friendly menu buttons.
7. 5V USB port for mobile device charging.
8. Temperature compensation for better battery maintenance in extreme environments.
9. Built in safety protections, including solar reverse connection, battery reverse connection, battery over-discharge and over voltage.

INSTALLATION NOTES

1) IMPORTANT REMINDERS

* The battery should be connected to the controller first.

* Please note that the maximum solar (PV) input voltage is SSV open circuit voltage (OCV). Do not use solar panel(s) with working voltage (VMP) of more than 40V (refer to solar (PV) module specs).

* Note the maximum solar (PV) input power is 450W/12V or 900W/24V. Do not exceed the rated power.

* Do not change any settings in the "LI" battery mode if you are not using a lithium battery.

* In the LI battery mode, you must set the battery system voltage (12 or 24V) manually. SET THE VOLTAGE FIRST, then set the charging voltage.

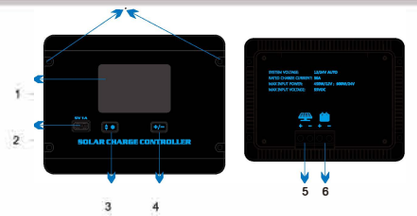
* If you would like to check the information in the "Li" battery mode settings, but not alter any settings, remember to set the correct voltage (12 or 24V) before exiting the settings.

2) HARDWARE RECOMMENDATIONS

* For maximum PWM charge efficiency, we suggest using solar panels with an output of 18V (VMP) for a 12V battery system, and 36V (VMP) panel for 24V battery systems. You can still use panels with lower voltages but it may lead to a slightly lower charge efficiency. In all cases the solar (PV) input voltage (VMP) must be higher than the battery system voltage.

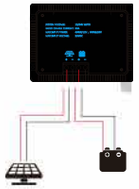
* For added safety and protection we suggest using a DC breaker or fuse between both the solar panel and the controller, as well as between the controller and the battery.

CONTROLLER LAYOUT



1	LCD display	5	Solar input wiring terminal
2	USB port	6	Battery wiring terminal
3	Set/page button	7	Installation holes
4	Parameter set button		

RECOMMENDED WIRING SEQUENCE



Connect the battery first.

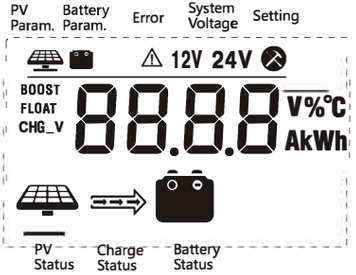
Connect the solar panel second.

*Use 10 AWG PV wire.

LCD DISPLAY

1) Display Overview

You can view system information using the LCD display, including PV input voltage, charge current, battery voltage, battery capacity, controller temperature, error codes and battery setting pages.



2) Solar (PV), Battery & Charge Indicators

ICON	ITEM	STATUS	INDICATION REMARK
	PV Indication	ON	PV volt higher than light control volt
		OFF	PV volt lower than light control volt
		Slow flash ON	Charging
		Fast flash ON	PV over voltage
	Battery Indication	ON	Battery is ok
		OFF	Battery is not ok
		Fast flash ON	Battery over discharged
	Charge Indication	Flowing	Charging
		No flow	No charge

OPERATION & SETTINGS PAGES

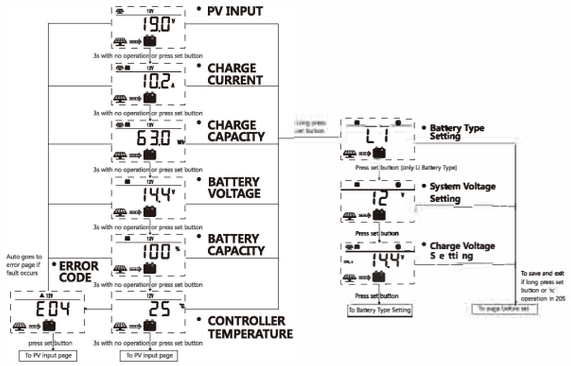
1)Button Setting Info

There are 2 buttons on the controller for operations and settings. Check the below diagram for setting details:

BUTTON	SETTING STATUS	PRESS	FUNCTION
▲▼⚙	In Setting	Press & hold	Enter page
		Quickly press	Enter next page for settings
	Not in Setting	Press & hold	Enter page for settings
		Quickly press	Enter next page
+/−	In Setting	Press & hold	No function
		Quickly press	To adjust parameter
	Not in Setting	Press & hold	No function
		Quickly press	No function

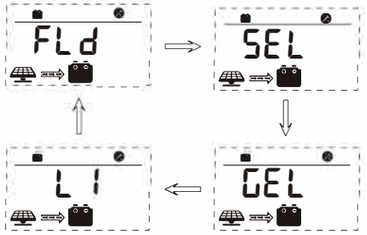
Remarks: "In Setting" means the user is in process of setting parameters.

2) Information Pages:



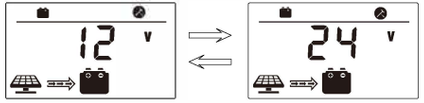
BATTERY TYPE & PARAMETER SETTINGS

1) Battery Type Setting



DISPLAY	BATTERY TYPE	REMARKS
FLD	Flooded Battery	Battery system voltage auto recognition; parameters set.
SEL	Sealed/AGM Battery	
GEL	Gel Battery	
LI	Lithium Battery	System voltage, charge/ discharge parameters, adjustable.

2) Battery System Voltage Setting (only for lithium battery, set manua11y)



3) Charge Voltage Setting (only for lithium battery)

CONTROLLER ERROR INFO & RECOVERY

The controller may display an error code on the LCD screen if there is an issue in the system. If this happens please refer to the below diagram:

CODE	ERROR	ANALYSIS	SOLUTION (Recovery)
E00	No Error	–	–
E01	Over discharged	The battery has been discharged below normal ranges.	Recovered once battery voltage returns to normal range. An alternate charge source may be required depending on depth of discharge.
E02	Over voltage	The battery voltage exceeds the normal range.	Recovered after the battery voltage returns to the normal range. It is possible that the battery may be defective.
E06	Device over heating	Charge shuts down due to high temperature inside the controller	Recovered after temperature returns to the normal range.
E08	Input over load	The solar (PV) input power exceeds the rated value	Recovered after the solar (PV) input power is within the controller ratings.
E10	PV over voltage	The solar (PV) input voltage is too high.	Recovered after the solar (PV) input voltage is within the controller ratings.
E13	PV anti-connection	Solar (PV) module +- polarity reverse-connection	Correct the + and – solar connection.
E14	Battery anti-connection	Battery +- polarity reverse-connection	Correct the + and - battery connection.

CONTROLLER SPECIFICATIONS

DESCRIPTION	PARAMETERS			
Model No.	SCC30AFM			
System Voltage	12V/24V			
No-load Loss	8ma (12V) , 12ma (24V)			
Max PV Input Voltage	< 55Voc			
Rated Charge Current	30A			
Max PV Input Power	450W/12V; 900W/24V			
Battery Type Selection	FLD	SEL	GEL	LI
Equalize Charge Voltage	14.8V (12V) / 29.6V (24V)	14.6V (12V) / 29.2V (24V)	–	–
Boost Charge Voltage	14.6V (12V) / 29.2V (24V)	14.4V (12V) / 28.8V (24V)	14.2V (12V) / 28.4V (24V)	14.2V (12V) / 28.2V (24V) adjustable
Float Charge Voltage	13.8V (12V) / 27.6V (24V)			–
Boost Charge Recovery Volt	13.2V (12V) / 26.4V (24V)			–
Over Discharge Recovery Volt.	12.6V (12V) / 25.2V (24V)			11.0V (12V) / 21.0V (24V) *auto adjusted to over-discharge volt
Over Discharge Voltage	11.1V(12V) / 22.2V(24V)			10.0V (12V) / 20.0V (24V) adjustable
Light Control Voltage	5V(12V system) , 10V(24V system)			
Light Control Delay Time	10s			
Operation Temperature	-35℃ ~ +45℃			
IP Protection	IP32			
Net Weight	1 lb			
Controller Size	6.67" x 5.12" x 1.84"			