ecowareness

30 AMP Solar Charge Controller

User Manual

WARNING: Read carefully and understand all assembly and operation instructions before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

#16003

SAVE THESE INSTRUCTIONS

Important Safety Information

Thank you for choosing a Ecowareness Product.
Save the receipt and these instructions. It is important that you read the entire manual to become familiar with this product before you begin using it.
This product is designed for certain applications only. the distributor cannot be responsible for issues arising from modification. We strongly recommend this product not be modified and/or used for any application other than that for which it was designed. If you have any question relative to a particular application, Do not use the product until you have first contacted the distributor to determine if it can or should be performed on the product.

WARNING

- Read and understand all instructions. Failure to follow all instructions may result in serious injuryor property damage.
- The warnings, cautions, and instructions in this manual cannot cover all possible conditions orsituations that could occur. Exercise common sense and caution when using this tool. Always beaware of the environment and ensure that the tool is used in a safe and responsible manner.
- Do not allow persons to operate or assemble the product until they have read this manual andhave developed a thorough understanding of how it works.
- Do not modify this product in any way. Unauthorized modification may impair the function and/orsafety and could affect the life of the product. There are specific applications for which theproduct was designed.
- Use the right tool for the job. DO NOT attempt to force small equipment to do the work of largerindustrial equipment. There are certain applications for which this equipment was designed. Itwill be a safer experience and do the job better at the capacity for which it was intended. DO NOT use this equipment for a purpose for which it was not intended.
- Industrial or commercial applications must follow OSHA requirements.

WARNING

This product can expose you to chemicals, including Di (2-ethylhexyl) phthalate (DEHP) which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, go to www.p65warnings.ca.gov

ADVERTENCIA

Este producto puede exponerlo a productos químicos, incluidos Di (2-etilhexil) ftalato (DEHP) que el estado de California sabe que causa cáncer, defectos de nacimiento u otros daños reproductivos. Para obtener más información, vaya a www.p65warnings.ca.gov

Cautions

Precautions when working with batteries

- Never smoke or allow a spark or flame near the batteries.
- Batteries generate hydrogen and oxygen during charging resulting in evolution of explosive gas mixture. Care should be taken to ventilate the battery area and follow the battery manufacturer's recommendations.
- Batteries contain very corrosive diluted sulphuric acid as electrolyte. Precautions should be taken to prevent contact with skin, eyes or clothing.
- Use caution to reduce the risk of dropping a metal tool on the battery. It could spark or short circuit the battery or other electrical parts and could cause an explosion.
- Remove metal items like rings, bracelets and watches when working with batteries. The batteries can produce a short circuit current high enough to weld a ring or the like to metal and thus cause a severe burn.
- If you need to remove a battery, always remove the ground terminal from the battery first. make sure that all the accessories are off so that you do not cause a spark.
- Use properly insulated tools only when making battery connections.

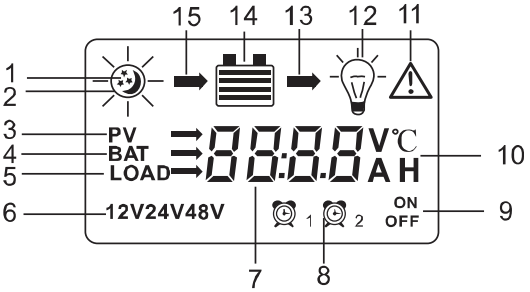
Precautions when working with solar panels

With the incidence of sunlight or other light sources on all solar panels, a voltage appears at the output terminals of the solar panel turning it into a source of electricity. To avoid a shock hazard make sure the solar panel is covered with an opaque (dark) material such as paper/cloth during the installation. Do not make contact with the terminals when the panel is exposed to sunlight or other light sources.

Precautions when working with Charge Controllers

If two or more solar panels are connected in series/parallel make sure that the sum of the short circuit current ratings of all panel strings does not exceed 80% of the charge controller's current rating.

LCD Display



1. PV array has no output or at night time.
2. PV array has output, this symbol will be displayed.
3. Indicator of PV array parameter
4. Indicator of battery parameter
5. The indicator of load parameter
6. System Voltage
7. Numerical Display Area
8. Timer Setting Function
9. Switch Symbol.
10. Unit Symbol Value
11. Fault Warning
12. The indicator of Load status:
Load on . Load off .
13. The indicator of Output power.
14. The indicator of capacity of battery.
15. The indicatorof charge status.

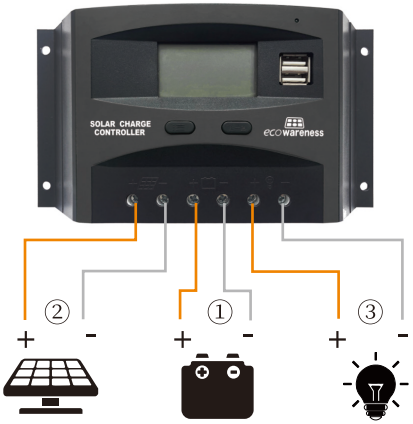
Installing Instructions

- **Controller install**

1, Controller should be installed well-ventilated place, avoid direct sunlight, high temperature and do not install in location where water can enter the controller.

2, Please reserve enough space between the wall and controller, to allow for cooling and cable connection.

- **Controller conection**



During installation of your PWM controller, please follow below order of connection:

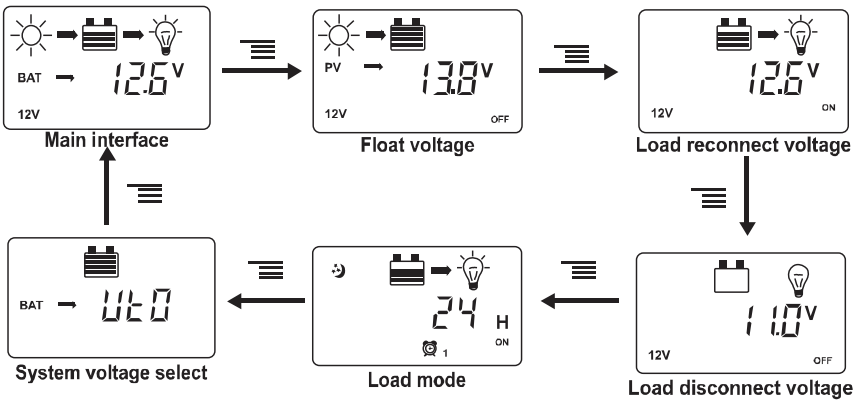
1. Connect the positive battery wire followed by the negative battery wire.

2. Make sure your solar panels are fully covered to prevent electrical shock. Connect the positive solar array output wire followed by the negative solar array output wire.

3. Connect the DC load wiring to the DC load output(if applicable)

Noted: Please do not use this controller to charge lithium batteries.

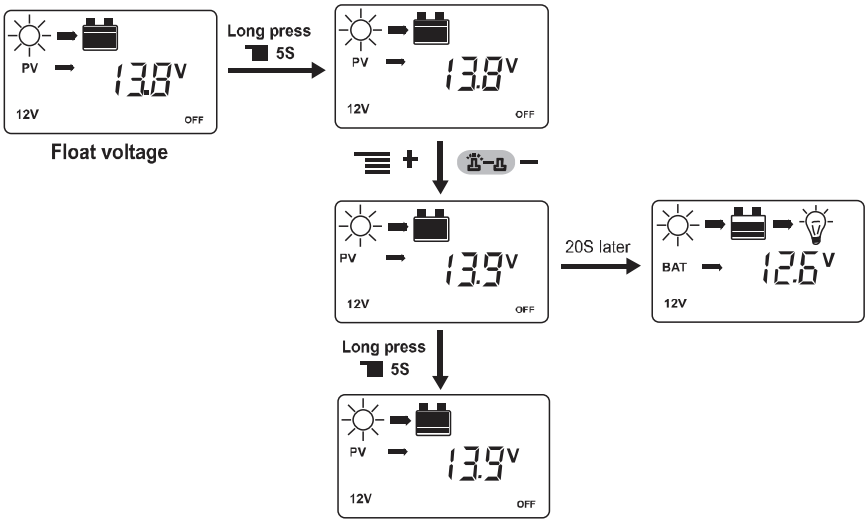
• Press button to next menu under main interface



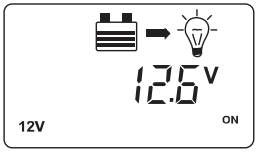
1,Float Voltage Setting

This parameter is High Voltage Disconnection (HVD) voltage. (Boost state voltage will be increase 0.6V base on HVD) The controller will be started PWM function at this point(HVD), limited voltage rising.

Press " " enter float voltage interface. Long press button ≥ 5S, the parameter on the interface will be flash, here is set up state. press" ", button again could operate plus data, press " " button could operate minus data. After finish the needed setting data, long press " " button again ≥ 5S to save and skip out set up state. automatically back to main interface if no operation in 20S.



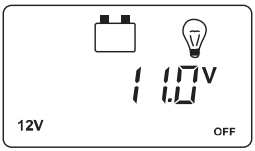
2, Low Voltage Reconnection Voltage (LVR)
Controller will stop DC power to the load When battery voltage low, Battery must be charge and voltage higher than LVR voltage or press button to recovery DC load. Setting procedure same with (1).



Load reconnect voltage

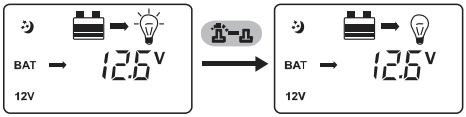
3, Low Voltage Disconnection Voltage
Setting procedure is same with (1).

Above 1、2、3 three parameter default data was fully considered by designer according to the actual use. Generally users don't need to adjust. Please must be refer to battery supplier's suggestion,or the battery will be damaged or irreparable destroy.

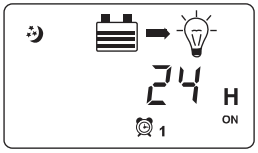


Load disconnect voltage

4, Press under main interface to swith load output ON/OFF.



5， DC Output work mode
Selecting work mode as below:
(24H) load output 24hours
(1-23H) load on after sunset and closed after setting hours
(0H) Dusk to dawn

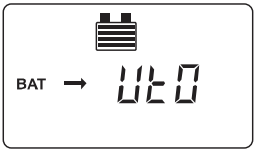


Load mode

6, System Voltage Select
Default Setting “UT0” , system voltage12/24V auto.

Setting “1” , 12V system.

Setting “2” , 24V system.

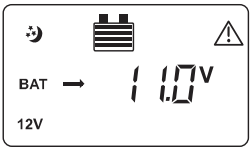


System voltage select

Protection

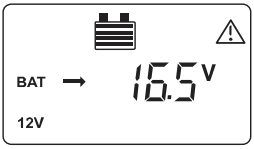
1,Battery Low Voltage Protection (LVD)

LVD protection started when battery voltage lower than 11V, battery symbol and warning flash, DC output OFF . Charge the battery till voltage greater than 12.6V, controller and DC output will be recovery,



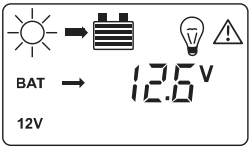
2,Battery Over Voltage Disconnection (OVD)

Over voltage protection started When battery voltage greater than 16.5V, DC output OFF, load and warning symbol flash. When the battery voltage was decreased to 15V, the protection will be release. TDC output recovery.



3, Load Over Current Protection

Output cut off when it's overload, load and warning symbol flash. check if there any short circuit on the load terminal, decrease load power. controller will be restart after 30S.



Trouble Shooting

Fault	Possible Reason	Solution
LCD no display after connected to battery	Battery low Reverse polarity of battery connect	Check battery voltage and battery polarity.
No solar and charge symbol on LCD after solar panel connect in the day	solar panel polarity reverse / open circuit	Check solar panels connection
LVD on the screen	Battery over discharge	stop the load and Charge battery to recovery voltage
HVD on the screen	Battery voltage high	Battery voltage has exceeded controller limit. Check battery bank voltage and solar input voltage for compatibilit with controller.

Specification

System Voltage	12V/24V
Max. Input Voltage of solar panel	50V
USB output	5V/1A
Self-consumption	≤12mA
Max. charge current	30A
LVD	11.0V/22.0V (±1%)
LVR	12.6V/25.2V (±1%)
Float Voltage	13.8V/27.6V (±1%)
Boost charging	14.4V/28.8V Battery Voltage less than 12V/24V start boost charging 2 hours
Battery Over Voltage Protection	16.5V/33.0V (±1%)
ReverseConnection Protection	yes
Load Over Current Protection	Yes, each two minutes restart once
Charge Type	PWM
Temperature Compensation	-24 mV/℃ for 12V system -48 mV/℃ for 24V system
Working Temperature	-20℃---+55℃
Terminal Scale	16-10AWG
Waterproof grade	IP32

Limited Warranty

Ecowareness warrants our products to the original purchaser that this product is free from defects in materials and workmanship for the period of 1 year from date of purchase. In the case of product defect, contact Ecowareness customer service to receive trouble shooting. If defective part or unit should be returned, a Return Authorization Number must be issued by Ecowareness and the defective part or unit should be returned to the authorized location at the purchasers' expense. A dated proof of purchase is required to receive warranty service. Once received at authorized location and defect proves to be the result of defective material and workmanship, the defective part or unit will be replaced at warrantors' option and returned to the original purchaser at warrantors' expense. No refunds will be granted by the warrantor, in the event of buyer's remorse please contact your point of purchase within and in adherence to their return policy. Refunds are granted at the retailers' discretions.

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