

55AH User's Manual of Solar Controller and Inverter Integrative

1. Security

The security of the Solar Controller and Inverter Integrative was fully considered during our design. For your security and interests, please install and use this product according to following regulations.

1. Place and operate the unit on a stable and level floor.
2. Do not spray or splash water directly onto the unit away from direct sunlight.
3. Please stay away from fire and high temperature, to prevent the temperature too high.
4. Do not place the unit into corrosive gas.
5. Do not operate Solar Controller and Inverter in a small and confined space.
6. Do not insert any object nor any liquid into the unit.
7. Forbidden to open the box by users, professional maintenance only or contact local distributor.

2. Performance and Feature

1. **Battery Charging Function:** This Solar Controller and Inverter could charge the battery from solar panels to battery uninterruptedly at day light.. The unit could adjust charging current according to the voltage of battery, extend battery life. The unit has float function, keep the battery always in full condition. The Unit still has reverse current protection, which cut the current from battery to solar panel at night.
2. **Low Voltage Disconnection Function (LVD):** Long time use inverter will have a heavy voltage drop of battery; greatly affect the life of the battery. The unit could disconnect the DC output when the Voltage of battery reaches to 10.8V. The unit could disconnect the AC output when the Voltage of battery reaches to 10.5V. So that the battery will be protected.
3. **High Voltage Disconnection Function (HVD):** The rated input voltage of the

inverter is 12V. If the input voltage of inverter more than 16V, the High Voltage Disconnection will be auto start to protect the battery.

4. **Electronic Overload Protection:** When the total power of electronic more than rated power of the inverter, the inverter will stop working inner 10seconds in locking state. The protection indicator bright and alarm. After decreased the loads, put the power switch of inverter in “OFF” condition 10 seconds above, then back to “ON” condition to restart working.
5. **Short Circuit Protection:** When there is short circuit inner household appliances, the inverter will stop working inner 1second and go to locking state. The protection indicator bright and alarm. After finished the short circuit problem, put the power switch of inverter in “OFF” condition 10 seconds above, then back to “ON” condition to restart working.
6. **High Temperature Protection:** When the temperature of inverter reach to 100°C because of hot weather or more loads, the inverter will stop working and in locking state. Proposes to reduce the load, improving the ventilation. After the temperature of inverter get down, put the power switch of inverter in “OFF” condition 10 seconds above, and then back to “ON” condition to restart working.
7. **Indicator got working status:** Add LED light for fault indicate, inverter indicate, multifunctional LCD indicator. Let all status in a glance.
8. **DC5V and DC12V Output:** DC output port could offer charging function and power supply function for your DC appliance.

3. Operation

Please read the following safety precautions and related operation before installation.

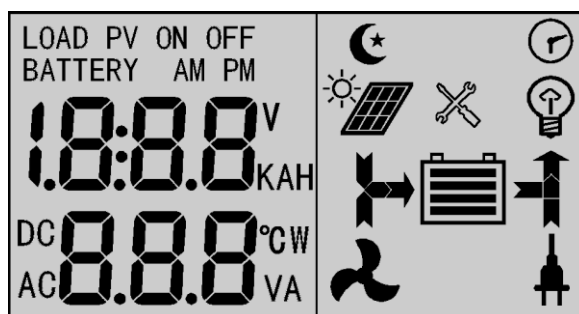
Please install the unit before fully understand the contents in order to avoid danger!

Operation as follows:

1. Preparation of related installation tools such as wrench, DC cables and components. Please check the location of the machine where should be meet the security item 1.

2. Check the voltage of battery or battery bank weather within required range. (See item5 Technical Data) Make sure the positive pole (red) and negative pole (black) of battery or battery bank, make sure the input cables of battery plus (red) and minus (black) on the machine.
3. Turn off the power switch, turn off the inverter switch (Red)
4. Please connect the (Red) plus cable of machine to the positive pole (Red) of battery (battery bank), Please connect the (Black) minus cable of machine to the negative pole (Black) of battery (battery bank). Ensure that all the joints are reliable and firmly connected. **Forbid battery reverse connection, forbid short circuit battery.** If the connection is not tight may cause local overheating and even burning.
5. Turn on the power switch, if the battery is full, the DC output will be normal working, LCD will indicate correct. Turn on the inverter switch, the indicator of inverter will be bright, the AC output will be normal working. (Please pay attention to the total power of household appliances, must not exceed the rated power of the inverter)
6. Install the solar panel outdoor and connect the output cable of solar panel to solar panel input poles of machine. (Please make sure the positive and negative, the cable of solar panels should less $3A/mm^2$) If the sunshine is enough, the LCD will show Solar Charge State.
7. **Notes: Please install the machine according to operation content. The power switch only in the event of a major failure will automatically disconnect, please do not turn off the power switch when the system normal working. If you have to disconnect the power switch, be sure to remove the solar panel input at first. Re-installation, to close the power switch first, and then connect the solar panels.**

4. LCD complete information and description for reference:



LCD Displaying have left side of parameters and right side of parameters

☾ : Sensor Control Symbol. When the load-interface has this symbol, the light control function was started.

⌚ : Timer Control Symbol. When the load-interface has this symbol, the timer control function was started.

☀️ : Solar Panel Symbol.

💡 : Load Symbol.

✂️ : Failure Symbol. When there is a failure, this symbol will be flash.

🔋 : Battery Symbol. The internal strip grid indicate the power percentage of battery.

🌀 : Wind Turbine Symbol. When this symbol appears, indicate that the wind turbine charge the battery.

🏠 : Grid Power Symbol. When this symbol appears, indicate to start the grid power charge the battery. If you insert the AC power 220V, the charging module inside the machine will charge the battery. Start Voltage 11.5V, Max. Charge Voltage 14V, standard charge current 5A. **(Forbid to use grid power input connector plug into Inverter AC output socket)**

Description of function keys:

↔️ Interface loop switch button; use the button to cycle between pages in each switch cycle sequence shown in (figure 1)

⬆️ Adjustment of parameters plus buttons. In addition, at the state in the parameter view, long press the button more than 5 seconds, all parameter to restore factory setting.

⬇️/💡 Adjustment of parameters minus button. In addition, in the main interface, click this button to switch the load.

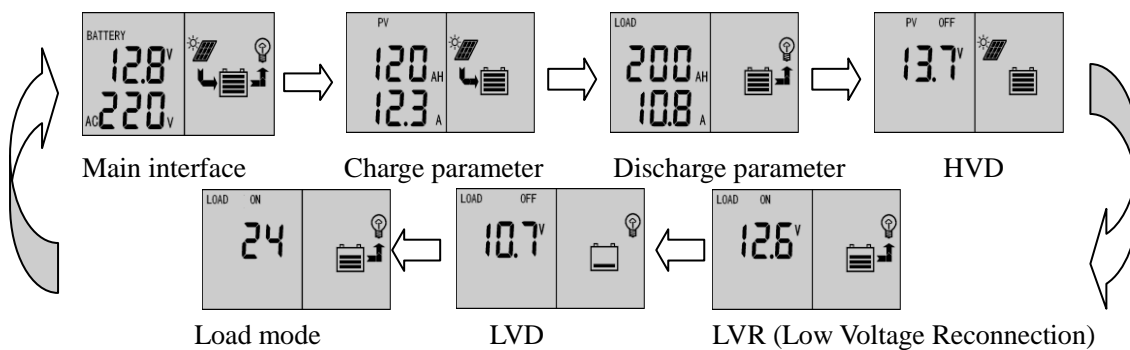
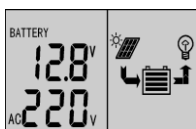


Figure 1

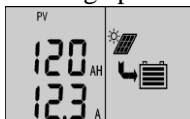
1. View and set the parameter of system



As shown on the left, displays charge status, battery status, voltage of battery, voltage of AC output, wind turbine and grid power status.

⬇️/💡 On, off the load.

2. Charge parameter of View



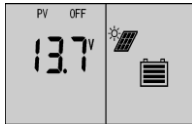
As show on the left, displays the accumulated charging power from solar panel to battery (total ampere hour) and shown the value of charging current at present.

3. Discharge parameter of View



As shown on the left, displays the discharge ampere hour from battery to load and the value of discharging current at present.

4. View and set the High Voltage Disconnection



As shown on the left, shows the values for the HVD voltage. When the voltage of battery is reach to HVD voltage, the controller will cut off the circuit of charging to prevent over-charging battery. Battery voltage drops under the value the charging circuit will be re-connected.

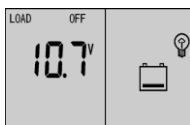
Keep the charging status. In this interface you can use the button 、 to adjust the parameter. The number will be flash. After long press the key (> 5seconds) , the number will be saved and stop flash. Short press to give up save the number and exit to next interface.

5. View and set the Low Voltage Reconnection



As shown on the left, shows the values of LVR voltage. Under the LVD protection in the controller, when the battery voltage is restored to the higher voltage than LVR voltage, the controller will re-connect the load circuit. In this interface you can use the button 、 to adjust the parameter. The number will be flash. After long press the key (> 5seconds) , the number will be saved and stop flash. Short press to give up save the number and exit to next interface.

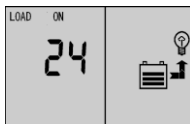
6. View and set the Low Voltage Disconnection Protection



As shown on the left, shows the values of LVD voltage. When the battery voltage is lower than protection voltage, the controller will disconnect the load circuit to prevent battery over-discharge.

In this interface you can use the button 、 to adjust the parameter. The number will be flash. After long press the key (>5seconds) , the number will be saved and stop flash. Short press to give up save the number and exit to next interface.

7. View and set the Load Working Mode



As shown on the left is Load working mode interface, different values represent different load working patterns.

24h—said Normal Mode, in case of no fault state of the load is always in power.

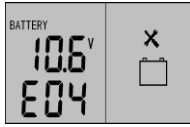
1h~23h—said Light Control with Time Control Mode, Load power after dark, and close the load according to the timer setting.

0h—said Light Control Mode, Load power after dark, turn off the load after drawn.

In this interface you can use the button 、 to adjust the parameter. The number will be flash. After long press the key (>5seconds) , the number will be saved and stop flash. Short press to give up save the number and exit to next interface.

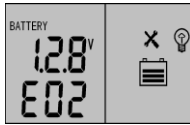
Common Fault and Handling

LVD Protection and Treatment:



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

Overload Protection and Treatment:



Screen display (see the figure) and flashing expressed load loop Circuit current sustained 60 seconds than 1.5 times rated current, the controller has entered into overload protection state. After reduce the load, press the button to restore power to the load.

Short Circuit Protection and Treatment:



Screen display (see the figure on the right) and flashing expressed there is short circuit on the load loop circuit. The controller has enter into Short Circuit Protection state Check the load if there is damage or not, if there is cable short circuit or not, after trouble shooting short press the button for restoration.

5. Technical Data

Max. Current from Solar Panel	20A
USB Max. Output current	600mA
DC outlet Max. output current	2A/one route/12V
Max. Input voltage	DC10-14V
Output power	≤400W
Self-consumption	≤1.5%
Output wave	Pure sine wave
Output voltage	AC 205—230V
Battery High Voltage Disconnection Voltage	14V
Battery Low Voltage Disconnection Voltage	10.8V
Battery Low Voltage Reconnection Voltage 压	12.6V
Output frequency	50HZ ± 5%HZ