Intelligent Solar Charge Controller

User’s Manual

Please read this instruction carefully before using it.

SOLAR30 12V/24V AUTO WORK

2. Installation Explanation

Get ready the related tools & cables. We suggest you choose the appropriate cables to ensure the current density <4A/mm² and this is good for reducing the cable voltage drop. Recommendation: 30A using 16mm², 50A using 10mm² cable.

1. Check whether installation place accords with the relative safety rules. Please avoid installing and using the controller under the following conditions: wet, dusty places or places with flammable and explosive gases.

2. Install the controller at the vertical plane. Please refer to chapter 5 for more detailed info about the spacing between the installation holes. In order to make the controller have good thermal dissipation, please leave 5cm above & below the controller.

3. As shown as the right figure, connect the loads, battery and solar panels with the controller in order. Pay attention to connect the loads, battery and solar panels right.

4. Plug the external thermal sensor into the interface of the thermal-sensor on the left of the controller.

Disassembly: To avoid the accident, please dismantle the solar panels, battery, loads from the controller in order.

Attention: Connecting the battery reversed will not damage the controller, but will cause safety risk on your loads.

2. Explanation of button function:

- The circular button. Use this button can realize the circularly switching among the interfaces. The circular order is as follows: as shown in figure 1.

+ : Parameter adjusting button. Besides, under parameter review condition, press this button for over 5 seconds, all the parameters will recover to the ex-work setting state.

- : Parameter adjusting button. Besides, at the main interface, this button can turn on or turn off the load.

3. Parameter review and setting:

After the controller enters the setting interface, it will enter into the displaying interface of battery voltage. This interface is the main interface of the controller. Press button  for long (5s) seconds, and the number on the interface starts to flicker, then it enters into the setting interface of this parameter. After finishing setting, press button  for long to exit the setting interface, and the number stops flickering.

3. Operation

1. Explanation of LCD Graphic Symbol

- : stop supplying power for loads
- : supplying power for loads, no current in load loop
- : leaving current in load loop
- : load icon
- : solar panels icon
- : load light controlling icon
- : load timing controlling icon
- : stop charging for battery
- : charging for battery at full speed
- : float charging for battery
- : normal working state of system
- : abnormal working state of system
- : battery capacity display
- : battery icon

3.1 Battery voltage figure, the displaying number is the right present battery voltage.

This interface is the main interface, and it shows the charging & discharging state, battery capacity and battery voltage.

3.2 Load ON/OFF controlling

At the battery voltage review interface, you can press button  to turn on or turn off the load, while this button does not have this function at other interfaces.

3.3 Environmental temperature review

Be used for the temperature compensation when the battery ceases charging.

As shown as the right figure, the displaying number is the surrounding environmental temperature of the controller.

3.4 Review the generating current of solar panels

As shown as the right figure, the displaying number is the generating current of solar panels.
3.5 The load current review
As shown as the right figure, the displaying number is the load current.

3.6 Review and clearing the accumulative generating AH of solar panels
As shown as the right figure, the displaying number is the accumulative generating AH of solar panels.
At this interface, press button \( >5 \) seconds, and it can clear accumulative generating AH.

3.7 Review and clearing load accumulative discharging AH
As shown as the right figure, the displaying number is the accumulative discharging AH of loads.
At this interface, press button \( >5 \) seconds, and it can clear accumulative discharging AH.

3.8 Review and setting low voltage protection function
As shown as the right figure, the displaying number is the protection voltage. And if the battery voltage is lower than this voltage, the controller will disconnect the load loop to prevent the battery from over-discharging.

At this interface, press button \( >5 \) seconds, the number starts to flicker, and it means the controller enters into the interface of setting the protection voltage. Use button \( \rightarrow \) to adjust this parameter. After finishing setting, press button for \( >5 \) seconds to exit this interface and the controller can store this setting number.

3.9 Review and setting recovering voltage for low voltage condition
As shown as the right figure, the displaying number is the recovery number. After the controller enters into low voltage protection state, and when the battery voltage recovers to be higher than the recovering voltage, then the controller will reconnect the load loop automatically.

At this interface, press button \( >5 \) seconds, the number starts to flicker, and it means the controller enters into the interface of setting the recovery voltage. Use button \( \rightarrow \) to adjust this parameter. After finishing setting, press button \( >5 \) seconds to exit this interface and the controller can store this setting number.

3.10 Review and setting the voltage of ceasing charging
As shown as the right figure, the displaying number is the voltage of ceasing charging. When the battery voltage reaches up to this voltage, the controller will disconnect the charging loop to prevent the battery from overcharging.

After the battery voltage drops, the controller will reconnect the charging loop. At this interface, press button \( >5 \) seconds, the number starts to flicker, and it means the controller enters into the interface of setting the voltage of ceasing charging. Use button \( \rightarrow \) to adjust this parameter. After finishing setting, press button for \( >5 \) seconds to exit this interface and the controller can store this setting number.

3.11 Review and setting the load mode
As shown as the right figure, it is the reviewing surface of the load mode. Different numbers represent different load mode.

- **24h** — indicating normal mode, loads are under the condition of supplying power without working for the delayed setting hours.
- **1h—23h** — indicating delayed mode of light control, loads start to supply power after dark and shut down after working for the delayed setting hours.
- **Oh** — indicating light control, loads start to supply power after dark and stop working after dawn.

At this interface, press button \( >5 \) seconds, the number starts to flicker, and it means the controller enters into the interface of setting the load modes. Use button \( \rightarrow \) to adjust this parameter. After finishing setting, press button for \( >5 \) seconds to exit this interface and the controller can store this setting number.

**Breakdown & disposal**

**Low voltage protection & disposal**: If the screen shows as the right figure, it means the battery voltage is lower than the protection voltage. The controller enters into the low voltage protection state and the load loop disconnects. The solar panels or charger to charge for the battery. When battery voltage recovers to the protection voltage, the controller will recover to supply power for load and enter into the working state.

**Overloading protection & disposal**: If the screen shows as the right figure, and the light flickers, it means the current of the load loop is 1.2 times of the rated current within 3 seconds, and the controller is at overloading state. After removing some loads, the controller will supply power to the loads automatically within seconds, or you can press button \( \rightarrow \) to exit this interface and the controller can store this setting number.

**Short-circuit protection & disposal**: If the screen shows as the right figure, and the light flickers, it means there is short circuit in the load loop, and the controller is at short circuit protection state. Please check whether the connecting cables are damaged and whether the connecting cables are short-circuit.

After eliminating the breakdown, press button \( \rightarrow \) to recover the power supply compulsively.

**Breakdown & disposal of solar panels**: Sign \( \rightarrow \) flickering means the controller do not detect the existence of solar panels. Please check whether the connecting with the solar panels is in good condition, and check whether the cables connecting the solar panels and the controller are in open-circuit condition.

**Load Impulsion breakdown**: If \( \rightarrow \) flickers when you turn on the load, it means the starting impedance current is more than twice of the rated working current. Please restart the controller for times.

**Other exceptional conditions**: Please contact the distributor or manufacturer.

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**Product Parameter**

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<tr>
<th>Parameter</th>
<th>SOLAR30</th>
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<tr>
<td>Rated working voltage</td>
<td>12V/24V</td>
<td>Installable maximum cable</td>
<td>7/8 AWG (16mm²)</td>
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<td>Rated working current</td>
<td>30A</td>
<td>Working temperature</td>
<td>-10°C~60°C</td>
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<td>Voltage of solar panels</td>
<td>≤48V</td>
<td>Storage temperature</td>
<td>-30°C~70°C</td>
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<td>Float charging voltage (settable)</td>
<td>13.8V/27.6V</td>
<td>Temperature requirement</td>
<td>≤90% no condensation</td>
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<td>Low voltage recovery (settable)</td>
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<td>Distance of installation holes</td>
<td>60mmx178mm --Φ5</td>
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<td>No load loss</td>
<td>≤30mA</td>
<td>Weight</td>
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<tr>
<td>Loop voltage drop</td>
<td>≤170mA</td>
<td>Temperature compensation</td>
<td>-4mV/Cell/°C</td>
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### Technische Daten

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<tr>
<th>Modell</th>
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<td>Temperatur-Kompensation</td>
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SOLAR CHARGE CONTROLLER

- LCD display
- PWM battery charging
- All necessary protections equipped
- Adjustable controlling parameter of the system

ISO 9001:2000 Accredited

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SOLAR30 SERIES

LCD display
PWM battery charging
All necessary protections equipped
Adjustable controlling parameter of the system