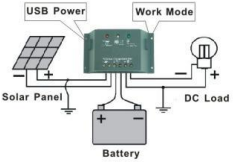
Solar Charge Controller Use's Manual

I. Features

1. Intuitionistic led indicators show the current system battery capacity, charging and discharging state of the battery.
2. Having the protection functions as overcharging, over discharging, overload, reversed connection.
3. Tandem type PWM charging makes the charging efficiency increase by 3% to 6%, compared with non-PWM charging.
4. The parameters of charging and discharging have been set during the production (special parameters need to be told in advance), so no need to adjust the parameters.
5. USB charging function (optional).

II. Installment Instruction



1. Check whether the installing place accords with safety stipulation. Avoid installing the controller in such place as wet, flammable, explosive places and places with corrosive gas.
2. Prepare all the installing tools and cables. Suggest you to choose the appropriate multicore cables to ensure the current density ≤4A/mm^2, and this can reduce the cable voltage drop.
3. Put the controller in vertical surface, and to ensure the controller have good heat emission, please reserve 10cm at up and down controller.
4. Use the cables to connect the controller with the battery first. After correct connection, check the battery indicator on the controller. If the indicator is not on, check whether the connection is right.
5. Use the cable to connect the controller with the solar panels. If there is sunshine on the solar panels, the charging indicator will flicker twice, and this means the connection is right, otherwise please check the connection.
6. Use the cable to connect the controller with the load. Pay attention not to connect it wrong. Otherwise is will damage the load.

Disassembly: To avoid the accident, please dismantle the connection as the following order: dismantle solar panels first, battery second and then load form the controller.

III. Operation Instruction

1. Charging and display: after the controller is connect right ,if the charging indicator is still not illuminating, this means the sunshine is weak or there is not sunshine, and if the charging indicator is illuminating. It mean the controller is charging the battery. When the indicator flicker, it means the battery enters into float charging mode, and this can make the battery at full charging state to lengthen the longevity of the battery. Only when the controller detects the battery over discharging, can it start the hoisting charging mode.
2. Battery capacity and display: when the battery indicator is red flickering, the load will shut time-delayed to protect the battery.

Battery capacity state	Full charged	Normal	Low capacity	Low battery warming
Indicator	Green	Orange	Red	Red flickering

3. **Load state and indicator:** When the load indicator is green and flicker, the load will be shut.

Load state	Starting	Shutting	Overload protection
Indicator	Green on	Green off	Green flickering slowly

IV. Working Mode

Normal controlling mode: no light control and timing control function, used as normal controller.

V. Breakdown Fixing

1. Red battery capacity indicator flickering means the battery is low, when the battery voltage recovers, controller will start the load automatically.
2. Load indicator flicker slowly means the controller output overloading. After removing the redundant load, the controller will eliminate the overload protection within one minute.
3. Charging indicator off means the solar panels not connecting well. Please check whether the connecting is right and whether the connecting is firm.
4. If all the indicator are off, check whether the fuse of the controller has been burnt or not, if burnt, please check whether the connection of the solar panels, battery and load is correct.

VI. Quality Assurance

1. Quality assurance should be carried out according to the following rules:
• The product is guaranteed of replacement, returning and repairing within 7 days after sale.
• The product is guaranteed of replacement and repairing within 1 month after sale.
• The product is guaranteed of repairing within 12 months after sale.
2. If it is not possible to identify the using date of the controller, we would refer to the ex-work date, and prescribe 18 months as the warranty period. We need to charge beyond the warranty period. The controller can be repaired for life no matter when and where you use it.
3. If the controller is damaged by the following causes, we need to charge even if it is in the guarantee period:
• Do not operate according to the user's manual.
• Use the controller under the condition which is beyond the using standard and technical requirements.
• Repair by yourself or reform by yourself.
• The inappropriate environmental condition which can cause the breakdown and aging of the apparatus.
• Improper carrying or storage.
• Regarding to the service of replacement, returning and repairing, you need to retreat the product to our company, and we decide whether to replace or repair after we make clear who should be responsible.
4. We will not note if there is any change of this product.

VII. Technical Data:

<table>
<tr><td></td><td colspan="3"></td><td>Low Voltage Reconnecting</td><td>12.6V</td></tr>
<tr><td>Rated Current</td><td>5A</td><td>10A</td><td>15A</td><td>USB Output(optional)</td><td>0.5A/1A</td></tr>
<tr><td>System Voltage</td><td colspan="2">12V</td><td>12V/24V</td><td>Charging Mode</td><td>PWM</td></tr>
<tr><td>No Load Loss</td><td colspan="3">≤12mA (not including USB)</td><td>Weight</td><td>145g</td></tr>
<tr><td>Charging(Discharging) Circuit Voltage Drop</td><td colspan="3"><0.2V(<0.15V)</td><td>Overloading</td><td>1.25 times than rated current, protect the load within 60 seconds;1.5 times than rated current, protect the load within 5 seconds. 2.5 times or over, starting the over load protection</td></tr>
<tr><td>Float Charging Voltage</td><td colspan="3">13.7V</td><td>Size</td><td>130mm*75mm*37mm</td></tr>
<tr><td>Environmental Temperature</td><td colspan="3">-20℃～50℃</td><td>Installing Holes</td><td>Φ3.5--55mm*122mm</td></tr>
<tr><td>Low Voltage Protection</td><td colspan="3">10.7V</td><td>Installing Cables Diameter</td><td>≤16mm^2</td></tr>
</table>