Main features:
1. Intelligent control is realized by using microprocessor and dedicated calculation control.
2. Four load working modes: Pure lighting control, lighting control & timing control, operation and debug mode.
3. High precision set-up constant current source is adopted, which can drive LED light directly. The current is adjustable, thus the controller can be used for various LED lamps and may use for adjusting the light.
4. Scientific management of battery: It is overcharged, the battery will get booster tension charge. As a result compulsory maintenance is available for the battery. In normal working state, the direct charge and floating charge are both available, so that the battery life-span is increased. Besides, the adoption of high precision temperature sensors makes the charging control more accurate.
5. All the data related to system mode and control parameter are reserved in the software in the controller after the power cut-off. This makes the performance of the controller much more reliable.
6. Comparing with the charging loops using diodes, the controller which adopts double MOS series circuit control makes the voltage loss dropped by 50%. With the PWM fuzzy control circuit, the charge efficiency is improved a lot.
7. LED screen shows the instantaneous state of solar battery, storage battery and load. LED shows the adjusted parameter. In this way, users can learn the operation state in near time. Besides, there are various choices for parameter, users can select the proper working mode based on the different conditions.
8. Various protections include over-charge, over-discharge and over-load, as well as unique electron short circuit protection and connection-reverse protection. All the protections are harmless to any parts and fuse. TVS thunder proof protection is also available. Non wire jumpers design improves the reliability and durability of the products.
9. Technical grades chips and precision components are adopted for all the controls. Therefore, the controller performs well in very low and high temperature, as well as humid environment. At the same time, with the use of crystal timing control, the timing function of controller is much more reliable.
10. Digital LED display and one button setup make the device easy to handle.

System description:
This controller is specially designed for solar LED street light. Small size and easy to install. With the adoption of high precision current source, the LED light can be droved directly. The maximum LED Street light connected to use is 120W. The highest efficiency is 94% and the control precision is 2%. The current can be adjusted by key press instead of using potentiometer. Without the use of potentiometer, the error is decreased a lot and the controller is much more precise. LED light modulated control and multiple time-period control are both available. Through the computer chips, the controllers take samples from the parameters of storage battery voltage, battery photo, discharge current and environment temperature, and then use the deduced control mode calculation to control the discharge state and make it matched with the characters of storage battery, realize the high accurate temperature compensation. PWM fuzzy charge mode and 7 phase voltage control are available for storage battery, so that storage battery is always in the perfect working state. The various working modes of controllers can meet customers' different requirements.

Installation and use:
1. The controller must be well fixed. The dimension of the controller is as following: Outside dimension: 1 80 × 96 × 25 (mm); installation dimension: 133.5 × 69.5 (mm)
2. Leads: the leads must be matched with the current. The length of stripped leads at the end of controller should be about 5mm. The longer the leads, the more the loss.
3. The connection to storage battery: Pay attention to the “+” and “-” in case of reverse connection. If it is connected well, the indication light will be on. Otherwise, please check the connection.
4. The connection to solar panel: Pay attention to the “+” and “-” in case of reverse connection. If it is connected well, the indication light will be on. Otherwise, please check the connection.
5. The connection to load: Connect the leads with load of controller. The two interfaces are in parallel connection, and the total current must be less than rated current. Pay attention to the “+” and “-” in case of reverse connection which may damage of the device.
6. Under controller power control: connect the loads to the switcher to the command position end in the controller. Attention paid to the “+” and “-”, or the commercial power can not be set into the system in the reverse connection.
7. When the solar panel is charged, please do not open the LED load or the output current of the LED is unstable.

Outside view of the controller:

Operation procedure:
A. Working state indication:
1. Solar panel indication: the solar indicator light is on, as the output voltage of solar battery reaches a certain point. The indicator light flashes slowly, as the storage battery is charging. The indicator will flash quickly, as the system is over charged.
2. Storage battery indication: when the battery is under voltage, the indicator light flashes. Over-charged for more than 10 seconds, the indicator light flashes quickly and the load is off. In normal working state, the indicator light is on continually.
3. Load indication: when the load is in normal working state, indicator light is on continually. The load is light off or short circuit. In short circuit, the output of controller is cut off automatically and the indicator light flashes quickly.

B. Setting methods:
1. Working mode setting: To press the button for 3 seconds, the LED flashes and the system of the device is under mode of regulation. After releasing the key, the data in the LED changes along with every key-press till matches with the model designated by customers. To finish the setting, please wait until the LED stops to flash. Or just press the button for 3 seconds.

FAQ:

2. current setting: when the LED display shows "8", (under manual mode) and LED light flashes, please press the key for more than 3 seconds before you turn off, indicator light is off. At current, the three LED indicator light flashes, please press the key to adjust the current. After you find the right current you need, please press the key for more than 3 seconds to preserve the data and go back to manual mode.

C. Modes description
1. LED light control: Without sunshine the light intensity decreases to start point. Then the controller recognizes the start signal after 10 minutes. Based on the parameter, the load is on. While under sunshine, the light intensity increase to start point, and then the controller recognizes the close signal after 3 minutes. Time control: The starting procedure is the same with that of pure lighting control. Timing control is dual period control; hence the double load can be regulated respectively. The load-on and load-off are alternated till the load is off in daytime. The time for the load-on and load-off can be adjusted to realize the different control effect. If the time for load-on is zero, the load will be off all night till the time for load-off is past. If the time for load-off is zero, the control effect will be the same with that of pure lighting control.

D. Manual modes:
Regarding the daylight or night, users can control the load-on and load-off by key-press under this mode. This mode is used for connect special load or regulation.

E. Test modes:
This mode is designed for system regulation. It is almost the same with pure optical mode except that the cancelation of 10 minutes delay (Please refer to pure lighting control). The load is on with optical signal. In reverse, without optical signal, the load is off. This feature makes it easier to check the system installation.

Work mode setting:

<table>
<thead>
<tr>
<th>Mode</th>
<th>LED Mode</th>
<th>LED Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light control</td>
<td>Full power 4h + Half 4h</td>
<td>Full power 4h + Half 10h</td>
</tr>
<tr>
<td>1</td>
<td>Full power 4h + Half</td>
<td>Full power 4h + Half 6h</td>
</tr>
<tr>
<td>2</td>
<td>Full power 4h + Half 6h</td>
<td>Full power 4h + Half 11h</td>
</tr>
<tr>
<td>3</td>
<td>Full power 4h + Half 11h</td>
<td>Full power 4h + Half 11h</td>
</tr>
<tr>
<td>4</td>
<td>Full power 4h + Half 2h</td>
<td>Full power 4h + Half 7h</td>
</tr>
<tr>
<td>5</td>
<td>Full power 4h + Half 7h</td>
<td>Manual mode</td>
</tr>
</tbody>
</table>

- In current setting — the date shows in LED display is the number of LED light in parallel connection. Current: 0.31A, No. 6

WARNING: please connect the led light first, and then open the load. Please confirm the LED current. If the customers do not set the current correctly, any damage to the LED light we will not be responsible for.

Parameter Description:

<table>
<thead>
<tr>
<th>Model</th>
<th>SLD-B series</th>
</tr>
</thead>
<tbody>
<tr>
<td>rated charging current</td>
<td>120A, 230A, 240V DC</td>
</tr>
<tr>
<td>Working Voltage</td>
<td>12V, 24V, 110V/220V Auto</td>
</tr>
<tr>
<td>No load losses</td>
<td>≤0.30A</td>
</tr>
<tr>
<td>Charging circuit voltage drop</td>
<td>≤0.20V</td>
</tr>
<tr>
<td>Over voltage protection</td>
<td>17V, 22V</td>
</tr>
<tr>
<td>Inrush current</td>
<td>13.6V, 22V</td>
</tr>
<tr>
<td>Direct charge voltage</td>
<td>14.6V, 22V</td>
</tr>
<tr>
<td>Float charge voltage</td>
<td>15.8V, 22V</td>
</tr>
<tr>
<td>Charge power consumption</td>
<td>13.6V, 22V</td>
</tr>
<tr>
<td>Lower voltage indication</td>
<td>12.6V, 22V</td>
</tr>
<tr>
<td>Over discharge voltage</td>
<td>11.1V, 22V</td>
</tr>
<tr>
<td>Temperature compensation</td>
<td>-4.0mV/°C (boost voltage, direct charge, float charge and charge return voltage compensation)</td>
</tr>
</tbody>
</table>

Control method: PWM Smart Charging

Working temperature: From -30°C to +60°C

Output display: 0.31A, 0.1V

Circuit protection: Over-charge, over-discharge, short circuit and over-load protection

All the protections are harmless to any parts and fuse of controller

Please check the line connected to photocell and make sure the proper connection.

Please check whether the battery voltage is well connected, or its voltage is not correct.

Please check whether the storage battery is well connected.

The storage battery is over-discharged.

Please check whether the equipment which consumes power is well connected.

Please check the connection. 12/24V Auto identified.