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# CDBM1 dual battery management module instruction

**Cloud drive intelligent technology Co.,Ltd**

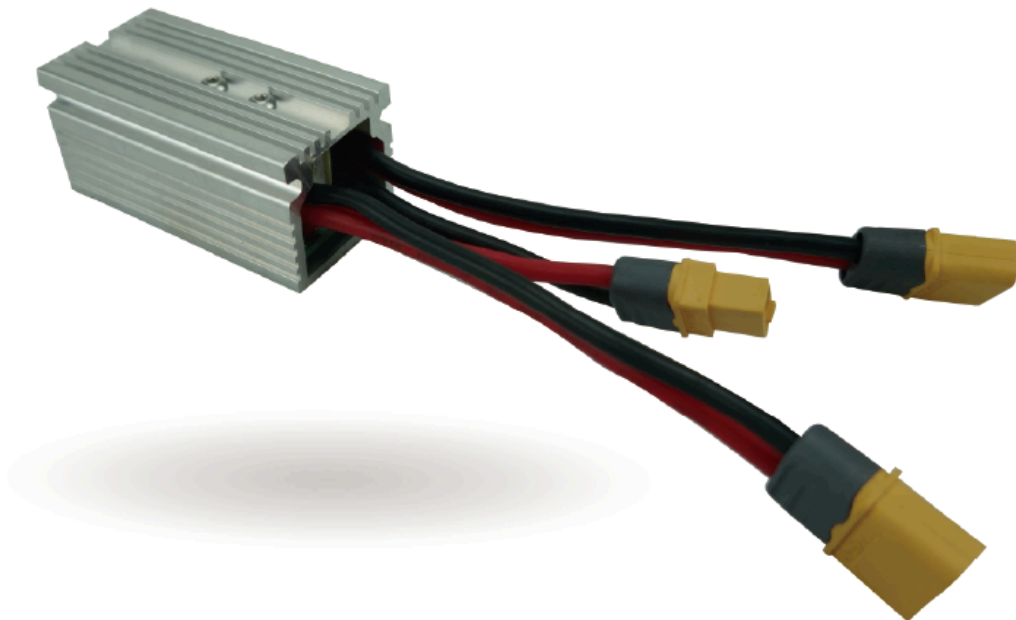
## 1. Dear users:

To ensure better performance of your ebike, please read through the CDBM1 instruction carefully before using it. We will inform you of all the details, including the installation and function setting of the display with the most concise words. Meanwhile, the specification will also help you to solve possible malfunction.

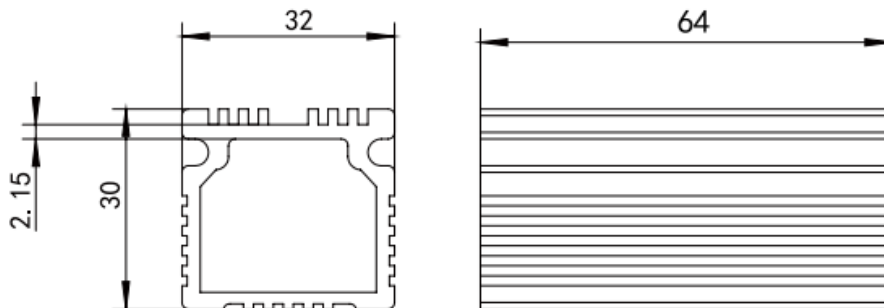
## 2. Materials and appearance and dimension

The shell and cover plate of CDBM1 product are insulators, made of aluminum alloy and aluminum natural color. The shell material is allowed to be used normally at the temperature of  $-35^{\circ}\text{C}$  to  $170^{\circ}\text{C}$  and can ensure good mechanical properties .

Product figure:



Dimension (unit: mm)



### 3. Function summery

CDBM1 is a dual battery management module which can connect with two batteries at the same time, which can expanded the range of the ebike.

(1) Isolate two batteries. It can prevent that when the two batteries directly connect, the voltage difference causes the two batteries charging each other, resulting in power loss and large current charging each other cause the battery damage.

(2) Two batteries can discharge at the same time, which relives the pressure of deep discharge of the battery, prolongs the service life of the battery, and makes the effect of the battery  $1+1>2$ . For example: The current of a controller is 30A. If there's only one 20AH battery, the battery discharge is 30A, that is 1.5C discharge. According to the discharge curve, the high current discharging will lower the battery voltage, resulting in the battery into the low-voltage protection, unable to use up 100% of the battery power. After using our double batteries manager, battery A and B each discharge 15A, that is only 0.75C discharge. According to the battery discharge

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curve, compared with 1.5C, 0.75C discharge causes less voltage falling and is not easy to cause the low-voltage protection. It can maximize the use of all the electric energy of the battery and achieve the purpose of longer cycling distance. The cycling distance of 1+1 battery discharging at the same time is longer than the cycling distance of two batteries discharging separately.

(3) The 0.75C battery discharge results in less BMS temperature rise, which is good for beneficial to improve the service life of BMS, and a smaller discharge current is beneficial to improve the life of the battery cell.

(4) Check the battery voltage and capacity, allocate the discharging current of battery A and battery B intelligently. The discharge more current from the battery with high voltage, discharge less current from the battery with lower voltage. Finally, the voltage balance of the two batteries is reached, so as to achieve the same discharge current of battery A and battery B.

(5) CDBM1 dual battery management module complies with the original parameters of the controller and the battery, and there is no need to modify the parameters of the display, controller, battery hardware and software in the system of the original model. It can be used directly and is well compatible with 24V, 36V and 48V batteries.

(6) The two batteries discharge evenly, and the remaining power and voltage are the same, so that the user can clearly know the capacity of the battery and charge the

battery in time to avoid battery dead before user arrive the destination.

(7) The maximum current of CDBM1 dual battery management can reach to 30A.

#### **4. Working principle**

CDBM1 can check and compare the input voltage of the two batteries at same time.

(1) After connect and power on the two batteries, without load , CDBM1 will prefer the battery with high battery voltage to discharge, and the other one will not discharge. If under the condition of load, the battery with high voltage discharges larger, and the lower discharges less. When the voltage of the battery A is almost close to the voltage of the battery B, then the battery A and the battery B discharge simultaneously.

(2) If only one battery is connected, it will discharge directly no matter load or no load.

(3) CDBM1 dual battery management module itself will have power consumption current of 3.5mA.

(4) Installation renderings



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## 5. Quality assurance and warranty scope

### Warranty

(1) Under warranty, our company will shoulder the responsibility to provide limited warranty to any faults caused by the quality of the product under normal use.

(2) The warranty period lasts for 18 months since the date of purchase.

### Other items

The following items does not belong to warranty range

(1) Disassembly or modification without authorization.

(2) Malfunction or damage caused by the misuse or improper installation and debugging by the users or the third party.

(3) Shell scratch or breakage after leaving the factory.

(4) Malfunction or damage caused by the force majored (fire, earthquake etc. ) or natural disasters (lightening etc.)

(5) Beyond Warranty period.