



CHARGERY

# BM16LP

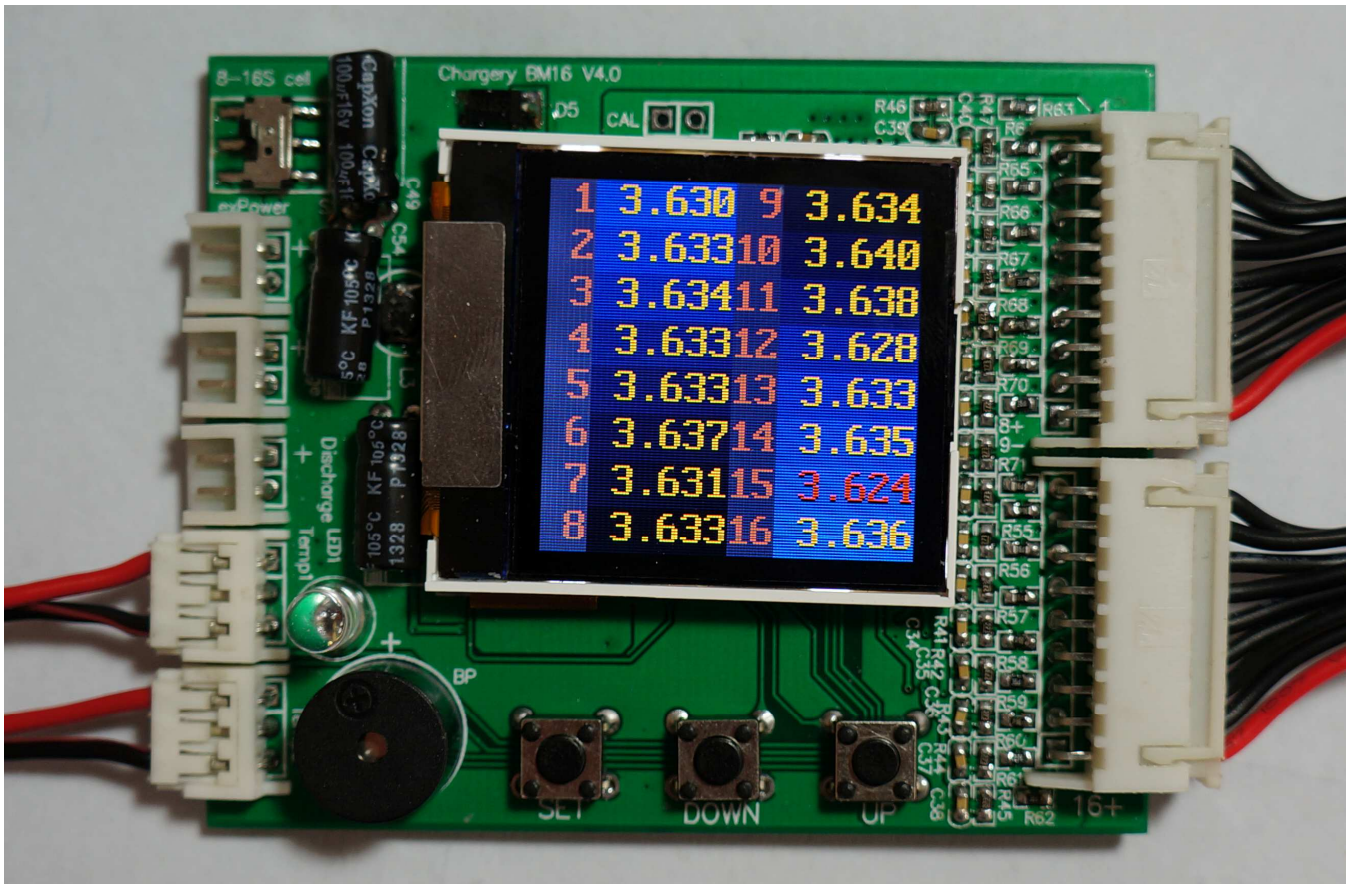
8S-16S LiPo CELL Monitor

Low power consumption

High accuracy

TFT LCD display

Programmable



Thanks for your purchasing the cell monitor for your vehicle.

Read the ENTIRE instruction manual to become familiar with the features/functions of the device before operating.

Feel free to send an email to [jasonwang3a@163.com](mailto:jasonwang3a@163.com) or call at 86 755 2643 6165 should you have any questions and suggestions.

Jason Wang

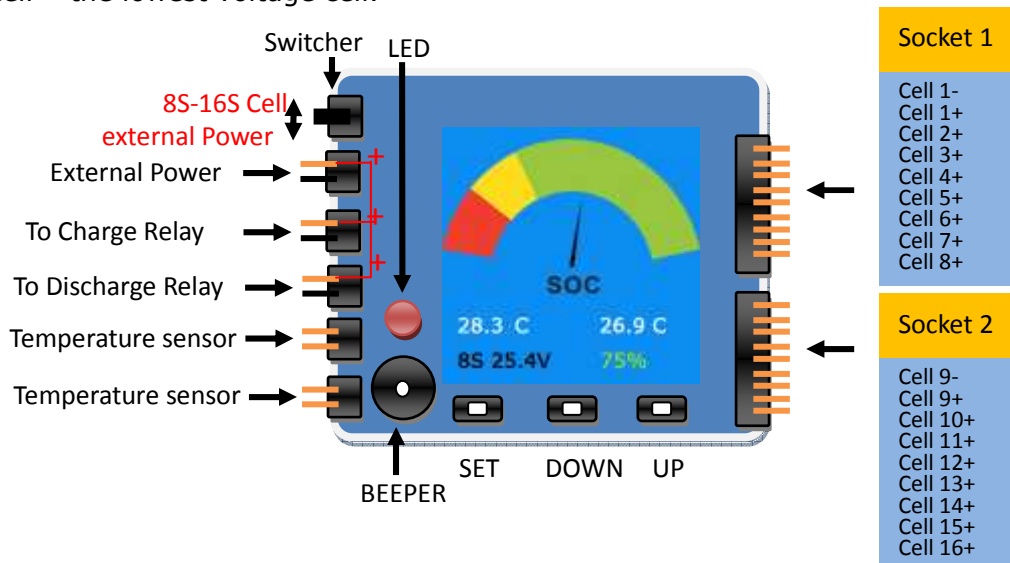
Chargery Cell Monitor BM16LP is designed special for 8S ~ 16S LiPo battery pack applied to E-bike, E-scooter etc., The unit is can measure or detect the battery voltage, cell voltage, 2 battery temperature, and battery SOC (State of Charge) and displayed with TFT color LCD. The parameters including over discharge voltage, over charge voltage, the highest battery temperature and the lowest battery gauge can be programmable. 2 alarm ports can power the contact or relay to cut off the charge or discharge when any cell voltage, cell temperature or battery gauge reach the threshold, the beeper and LED will sound and flash for warning.

During battery discharge, if any cell voltage under setup value, or battery temperature over setup or battery gauge under setup, the BM16LP can sound and LED flash alternately prevent any cell from over discharged.

During battery charge, if any cell voltage over setup value, or battery temperature over setup, the BM16LP can sound and LED flash alternately prevent any cell from over charged.

In any case, when cell voltage difference is over setup value, the unit can alarm.

When stop driving your bike or scooter, you can check the lowest cell voltage, so you can find the worst cell---the lowest voltage cell.



When the switcher is on the external power position, the external Power (VCC) will power the system and the relay coil, as indicated above drawing. The voltage of external power ranges from 15-30V. When the switcher is on the 8S-16S cell position, the system will draw current from all cells and the current is less than 0.1mA even the LCD back-light ON. If your vehicle is not in use, you can move the switcher to external position to save cell energy.

**New features**

The device is updated to V4.0, the new features is as below,

- Detect cell count at any time, and compare with the count detected when switch on first time. If it is not uniformity, the device will alarm, the feature can prevent any cell connection from loosing on driving.
- Sound alarm and LED alarm will be triggered 2 seconds later when any warning event happened, and the alarm port will be triggered after 4 seconds

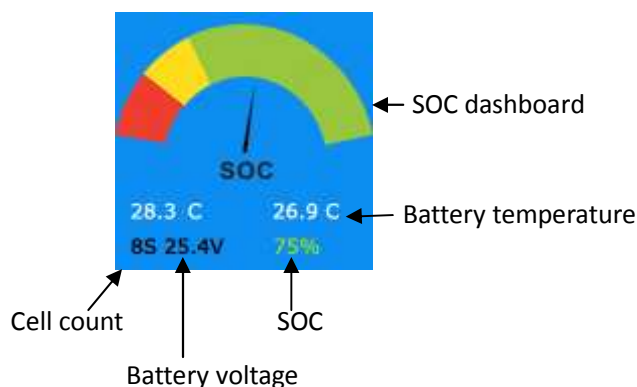
- Minimize the power consumption at stand-by mode, the power is from all cells, keep all cells balanced.
- Two alarm ports can control the charge relay and discharge relay separately.
- Add a power switcher, alternate the external power and all cells.

### Features

- BM16LP can indicate battery SOC or called battery gauge similar with car dashboard. Cell count, battery pack voltage and battery gauge (%) is displayed simultaneously.
- BM16LP will record the lowest voltage of each cell during discharge, after you stop driving your bike, scooter etc., you can press **UP** or **DOWN** button to display these voltages (**cell number background color is green, and the lowest cell voltage displayed in RED text**), press the button again display real voltage.
- Beeper sound and LED flash alarm alternately while any cell over charged or over discharged or out of the setup range including temperature SOC, difference of cell voltage.
- Two temperature sensors monitor battery temperature during charge or discharge.
- At any time, you can press **SET** button shortly turn off the display and press again resume.
- While alarming, press **SET** button shortly turn off alarm.

### Operating guideline

1. Connect the battery to BM16LP, keep the polarity correct. The detailed connection diagram is as the following figure 1 and figure 2.
2. The unit will initialize the beeper and LED, beeper sounds once time, warning LED flash once time.
3. 2 seconds later, the BM16LP will display cell count, please press **SET** button confirm or check with you cell connection to amend it.
4. And then display battery SOC (State Of Charge) as same as car dashboard., two battery temperatures, cell count, battery pack voltage, and battery gauge in digital percentage on the bottom line from left to right.
5. Press **UP** or **DOWN** button to check with each cell voltage and lowest voltage during driving.
6. Press **SET** button for 3 seconds enter into Program Setup menu.



In driving, BM16LP can alarm loudly and a RED LED flash alternately when any cell voltage under over discharge warning voltage till the cell voltage over the value

If the cell voltage is still under warning voltage, the unit will beep and flash repeat for 20S.

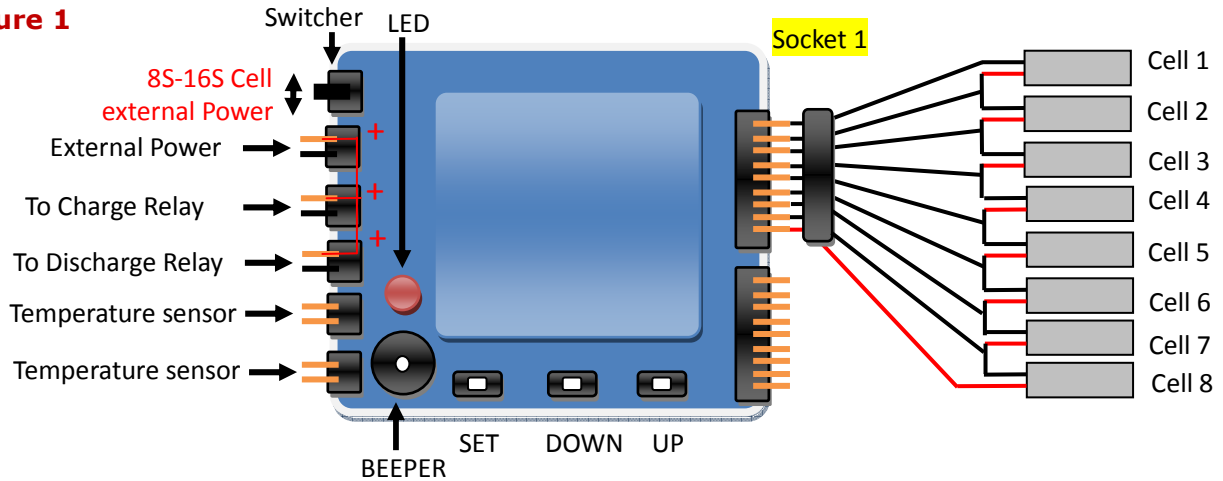
The unit includes reverse polarity detection, and 2.54mm pin distance balance connector for all kinds of battery.

### Connection Diagram

There are 2 sockets connecting to battery pack, socket 1 is for 8S and socket 2 for 9S~16S battery.

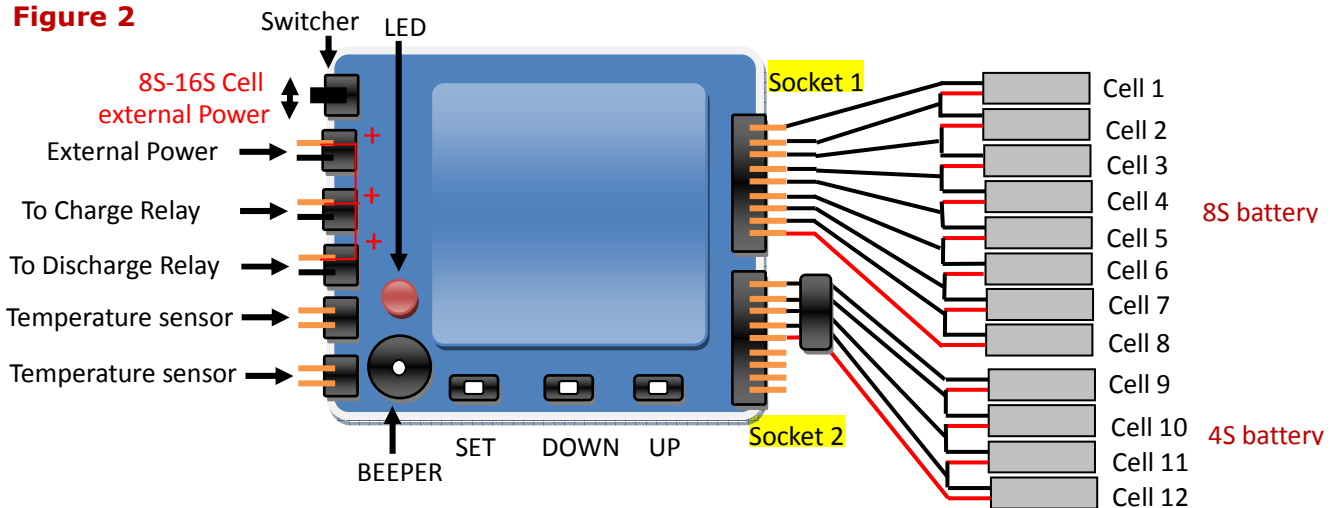
1. One 8S battery can plug into the socket 1 directly, 6S connections as following.

**Figure 1**



- For two battery packs, connect them in series first and then plug battery 1# into socket 1, and battery 2# into socket 2 separately. Take one 8S battery and one 4S sample as following:

**Figure 2**



**Specifications:**

- Battery range: 8S-16S LiPo battery pack
- Over charge warning voltage: **3.90~4.30V** per cell, step 0.01V, default 4.25V
- Over charge release voltage: **3.90~4.30V** per cell, step 0.01V, default 4.20V
- Over discharge warning voltage: **2.80~4.20V** per cell, step 0.01V, default 3.00V
- Over discharge release voltage: **2.80~4.20V** per cell, step 0.01V, default 3.20V
- Over cell voltage difference warning voltage: **0.010~0.200V** per cell, step 0.005V, default 0.100V
- Over temperature warning: **30~80°C** step 1°C, default 50°C
- Under battery gauge (SOC) warning: **5~90%** step 1%, default 30%
- Delay time when start to warning: **2S**
- Warning time: **20S** per period
- Accurate scope of the cell voltage: -5mV/+5mV
- Cell Voltage display range: 0.50~4.99V, NO display when under 0.50V
- The voltage of external power: 15-30V.
- Temperature display range: 0.0°C~99.9°C,
  - Display 0.0 when under 0.0°C
  - Display 99.9 when over 100°C
- SOC indicator:



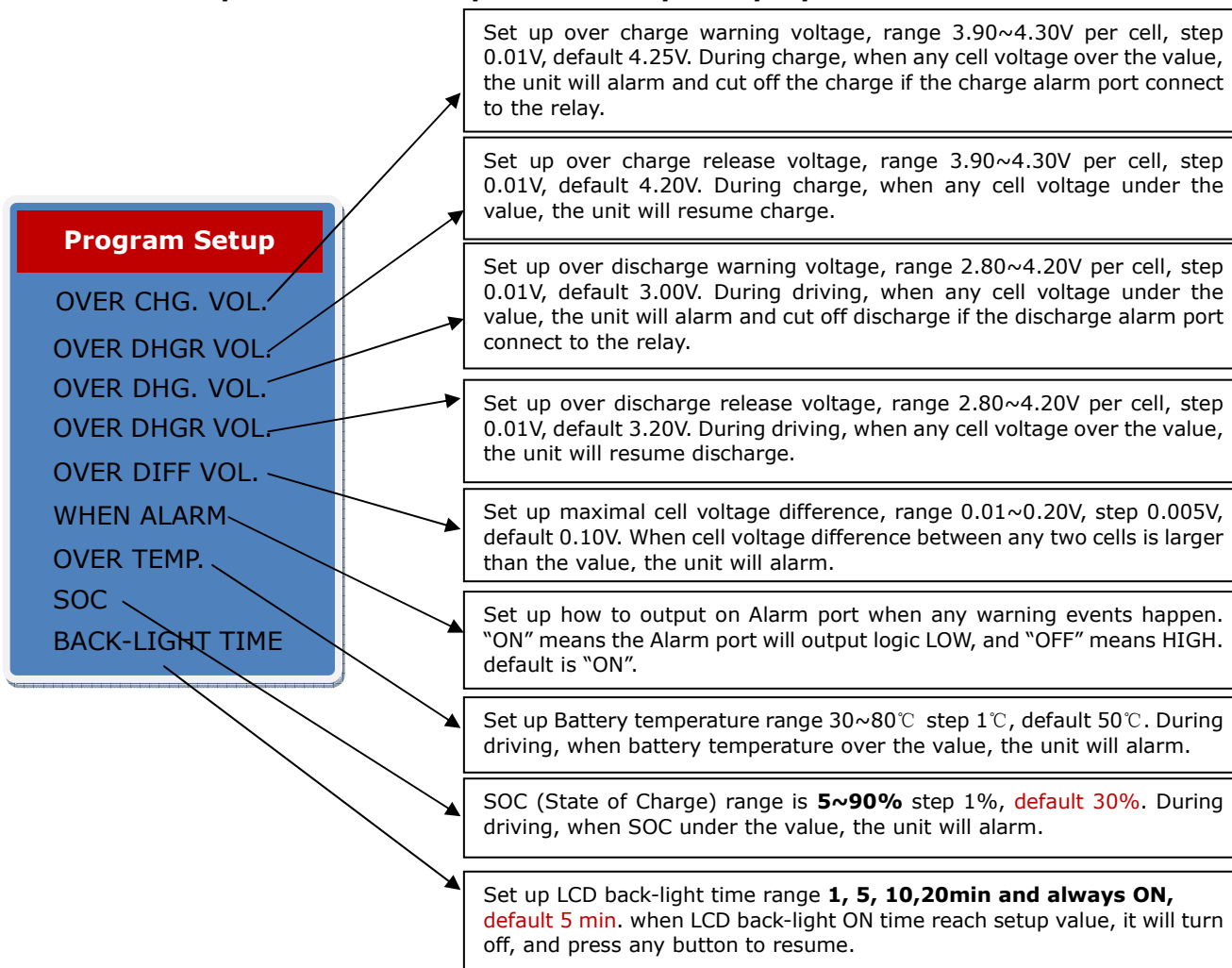
- RED area @ 0~15% of SOC
- YELLOW area @ 16~35% of SOC
- GREEN area @ 36~100% of SOC
- Pins distance: 2.54mm
- Size:70\*65\*11 ( L\*W\*T, mm)
- Weight: 30g
- Warning LED: 11000mCd, @ 2.0V, 20mA
- Warning beeper: 85dB @ 12V, 25mA
- Package: transparent heat shrink tube or Customized AL alloy case

### Program setup

Before driving your e-bike or e-scooter etc., you can set up many important parameters prevent your battery from over charge, over discharge, over difference of cell voltage, under battery gauge or over temperature.

1. Press **SET** button for 3 seconds enter into Program Setup menu.
2. Press **UP** or **DOWN** button select the item, press **SET** shortly make the value flash, and press **UP** or **DOWN** change the value. Press **SET** button shortly confirm the change. After finish all setup, press **SET** for 3 seconds quit the setup menu.
3. When quit setup mode, the device will remember all parameters till next change.

**NOTE: Please keep the default setup unless for special purpose.**



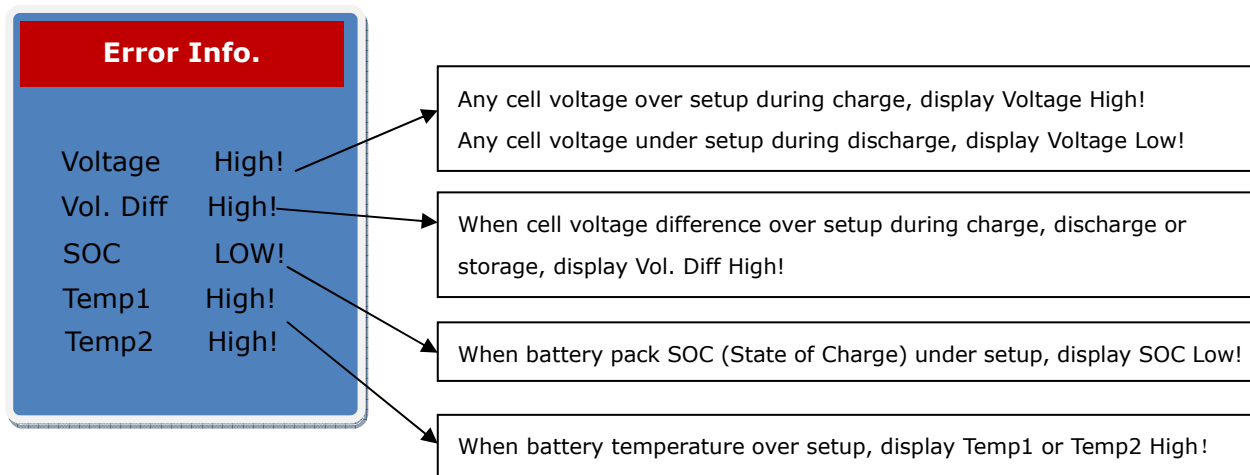


**Alarm Remind**

If the device detects the alarm events, including over charge, over discharge, over temperature and over difference voltage, it can do:

1. The buzzer beeps and LED flash.
2. You can press **UP** or **DOWN** button check the error information, as the following,

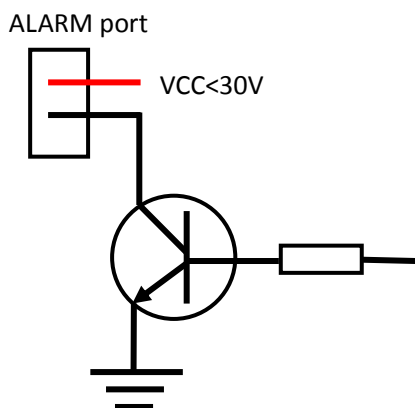
**Error information**



3. At the same time Alarm port will output the presetting signal ON or OFF.  
Alarm output port signal ON means the collector connected to Ground.  
Alarm output port signal OFF means the collector open.

**Warning:**

**Please attention to the port voltage and current limit when use (<30V, 1A)**



**Warranty and Service**

Chargery Power Co., Ltd. as manufacture of R/C model power warrants its charger and saver, monitor etc. to be free of defects in material and workmanship. This warranty is effective for 12 months from date of purchase. If within the warranty period the customer is not satisfied with the products performance resulting from a manufacturing defect, the accessory will be replaced or repaired.



CHARGER Y

Your selling dealer is your first point of contact for warranty issues. Return postage costs are the responsibility of the user in all cases. Please submit copy of original receipt with the return.

Damage due to physical shock (dropping on the floor, etc.), inappropriate power supply (unstable output voltage and insufficient power, etc.), water, moisture, and humidity are specifically NOT covered by warranty.



Charging Expert

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