

Why can't backup batteries reach 100% capacity as advertised?

The storage capacity of the spare battery is only relative and the actual usage capacity as well as the performance will never reach 100% as advertised by the manufacturer.

Backup battery is a device that many people choose to ensure that the mobile device's energy source is continuously operated wherever and whenever. But there is no known fact, that the storage capacity of the spare battery is only relative and the actual usage capacity and performance will never reach 100% as that manufacturer advertises.

1. This is why Apple 's \$ 20 charger cord is easier to break than \$ 2' fake '
2. Surgical cable charging iPhone fake goods and genuine goods to see "expensive but chopped"

Suppose if you have a spare battery of 10,000mAh capacity and a smartphone with a battery capacity of 2,000mAh. In theory, after 5 times of charging the phone, the new backup battery needs to be recharged. But in fact this will not happen, you can only charge up to about the 4th time the backup battery has run out of power.



The cause of the loss comes from the charging process as well as the construction of the backup battery.

Typically, backup batteries are made up of two components - the battery core (cell - consisting of two main types: Lithium-Polymer (Li-Po), Lithium-ion (Li-Ion)) and intensity control circuit. current and voltage.



- Temperature Resistance**
Heat-sensitive and temperature control mechanisms ensure Li-ion batteries operate within a safe range.
- Short-circuit protection**
The motherboard and battery are automatically protected if short circuit occurs.
- Reset Mechanism**
Raises the power bank if it stops responding by simply pressing the Power button.
- Input Over-Voltage Protection**
OVP circuit prevents voltage surges from damaging the device.
- Automatic Charger Protection**
Detects when the charger is inserted incorrectly and will automatically stop charging.
- Protection from Output Overcurrent**
Monitors output current and shuts off when current exceeds the maximum limit to protect the device.
- Output Overvoltage Protection**
Monitors output voltage and shuts off when voltage exceeds the maximum limit to protect the device.
- Protection from Overcharge and Over-discharge**
Japanese technology is used to prevent overcharging and over-discharging from damaging the Li-ion batteries.
- PTC Protective Circuits for the Cell**
Imported battery cells are equipped with PTC to effectively control and protect batteries when temperature and current exceed the maximum limit.

Structure of backup charger.

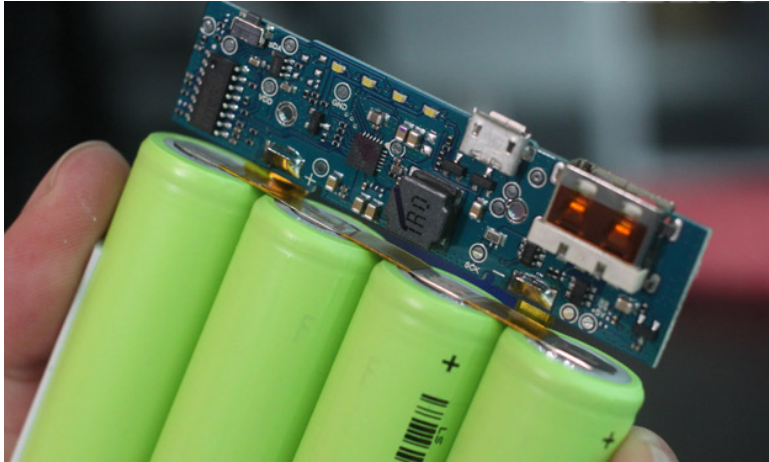
In fact, battery cells (typically Lithium-Ion) inside backup chargers only have a 3.7 Volt rated voltage, when charging can increase to a maximum of 4.3 Volt and will decrease when battery used. At the same time, smartphones now have a standard 5 Volt charging standard, meaning charging can only be received if a 5 Volt current is supplied.



Internal cells backup battery.

To solve this problem, manufacturers have used current and voltage intensity control circuits (referred to as charging circuits) for turbocharging and low voltage.

When the user charges the smartphone, the line and voltage at the backup battery will be 'clicked' to the standard level of 5V, while the micro-USB port will have a different role to lower the voltage to 4.3 Volt to avoid unnecessary fire and explosion incidents. The process of loading power, the process of increasing and lowering the voltage when charging has consumed about 10% of the power of the backup battery, a number not small.



Above the battery core is the current and voltage control circuit.

Like all other common batteries, extra batteries also consume power even when not in use. In addition, your backup battery and device generate heat and this excess heat is also one of the reasons why the power stored in the cells is wasted.

At this point, you probably understand why the backup battery can't reach 100% of the capacity as advertised. Here are some tips to help you preserve and use battery backup better.

1. Store spare batteries in dry conditions, avoid direct exposure to sunlight and corrosive materials.
2. Keep the battery at about 20-30 degrees Celsius.
3. Discharge the battery periodically every 3 months.
4. Load immediately when fully discharged to avoid battery falling into sleep state.
5. Do not use continuously with high intensity.
6. The battery has the highest life expectancy when kept at 20-80%.
7. To make sure your device is fully charged, buy a spare battery that's 25-30% larger than the smartphone's capacity.

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