What is a UPS? What types are available?

Let's find out in detail what UPS is, including what types to choose the most suitable device for you!

In this article, TipsMake.com will answer frequently asked questions about what UPS is like, what kind of UPS, what applications, what price and how much . to help you easily choose. Be yourself a device that is suitable for use at home or at work.

UPS is a backup device for power outages and is widely used in many different activities of life. If you still do not understand this device, do not miss the following useful information!

Quick view content

1. What is a UPS?
2. What types of UPS are there?
3. Features and applications of UPS
4. What to note when buying and using UPS?

What is a UPS?

UPS is an acronym for **Uninterruptible Power Supply** or **Uninterruptible Power Source** , commonly known as **power banks** , **backup batteries** , **batteries** , **storage units** , **chargers** .

UPS is a type of continuous power supply system, whose main function is to provide backup power for electrical equipment in the event of mains power surges, shortages, shortages, fires, power outages, outages, etc. UPS will ensure that the load is maintained so that electrical equipment can continue to operate normally until it is shut down properly or until the generator operates, helping to reduce power outages. Do not interrupt the operation or cause damage to electrical equipment.

Depending on the design capacity of each unit, the load retention time for electrical equipment to continue operating after an electrical failure occurs is different.

UPS is an indispensable device to limit the impact from electrical incidents.

Structure of UPS

The structure of a backup battery consists of the following main parts:

1. Battery (Battery): A place to store electricity.
2. Charger: Charger the battery.
3. Rectifier: Converting alternating current into direct current.
4. Inverter (Inverter): Convert direct current into alternating current.

Principle of operation of the UPS

The mechanism of operation of each type of UPS is not the same, but all follow the following general principles:

1. When the utility grid is normal: The UPS battery is charged.
2. When utility power fails: The direct current from the UPS battery will be inverted into alternating current to provide electrical equipment.

What types of UPS are there?

UPS power units on the market today are usually divided into three common types based on technology and operation, including:

UPS power supply offline

Operation of offline UPS takes place as follows:

1. Under normal conditions, the input mains power goes through a circuit switch to the electrical equipment. The alternating current from the mains is the direct power supply to electrical equipment, the input and output power are exactly the same.
2. Only when the mains power supply happens to increase or decrease the voltage, the UPS offline will disconnect the grid and switch to battery power. Direct current from the battery is inverted into alternating current to supply electrical equipment.

With the above operation, the offline UPS power storage has the advantage of being cheap, but the downside is that there is a delay in switching from the grid to the battery.

The offline UPS unit adopts line interactive technology

Compared with conventional offline UPS, offline UPS with interactive line technology is equipped with an automatic transformer and has the following mechanism of operation:

1. Under normal voltage condition, auto-transformer will not interfere with input voltage. The input and output power is exactly the same as on the offline UPS.
2. When the voltage of the mains power is increased or slightly decreased compared to the predefined standard limit, the auto-transformer will interfere with the input power so that the voltage is met and then supplied to the electrical equipment. Therefore, although the power supply for electrical equipment is still mains, input and output voltage will be different.
3. Only in the event of a mains power failure or power outage, the unit can disconnect the grid circuit and switch to the battery circuit. Direct current from the battery is inverted into alternating current to supply electrical equipment.

With the same structure and operation as above, the offline UPS unit adopts line interactive technology which has a remarkable advantage over the offline UPS unit thanks to the added voltage stabilization function.

UPS online

With UPS online, the power supply for electrical equipment is created entirely from the UPS based on the following mechanism:

1. Under normal conditions, the UPS will rectify the alternating current from the mains to a direct current with a voltage equivalent to the voltage of the battery, then invert this DC current into alternating current. and then give it to electrical equipment.
2. When the utility power fails, the unit will use the battery circuit. Direct current from the battery is inverted into alternating current to supply electrical equipment.

Thanks to this operation, UPS online takes no time to wait for switching and ensures maximum stability for the voltage of the output current.

In addition to the classification based on the technology and mechanism of operation as above, the UPS can also be classified based on the specific use purpose, the most common is the type of rolling shutter door (used to support for opening and closing doors), computer power storage (used to support backup power to the computer to avoid data loss) .

Types of UPS are extremely diverse, rich in style, design, features.

Features and applications of UPS

Although it is not possible to prevent incidents from mains power, using the UPS backup power unit will help electrical equipment to avoid disruption, damage or loss of storage data due to sudden power outages. . Depending on the purpose of use, you can choose UPS with the capacity to meet the family size or industrial scale in the most reasonable way.

Currently, many types of UPS have the ability to improve the quality of the power source through the function of voltage stabilizer, frequency stabilizer, anti-pulse, noise filter, lightning protection . as well as equipped with many advanced utilities. advances such as allowing the addition of external batteries, sending reports remotely, can self-diagnose errors . should enhance the ability to operate stable, durable and efficient electrical equipment, while bringing the Convenient for users.

Therefore, the UPS is used extensively in life as well as in the fields of information technology, health, industrial production, security and defense . to help electrical equipment. such as computers, rolling doors, lights, CCTV, server systems, production machines, office machines, medical machines . uninterrupted due to electrical incidents, avoiding images. affecting daily life and work, minimizing risks and losses in production, business, medical examination and treatment activities .

UPS backup power is widely used in life and production.

What to note when buying and using UPS?

UPS on the market today has many different models, depending on technology, capacity, features, brands . but the price can be cheap from only a few hundred thousand or even expensive to dozens. million dong, so you need to note some points to choose the right equipment, quality with the most reasonable price:

1. Choose the UPS with technology, capacity, features that best suits the type of electrical equipment to use UPS, the capacity of electrical equipment, the time the electrical equipment should be maintained when an electrical problem occurs.
2. Choose a UPS with a solid design, made of high-quality materials to ensure the most durable, safe and efficient operation.
3. Choose reputable brands such as Apollo, Hyundai, Hanotech, Maruson, Santak, APC . and reliable sales addresses to ensure the quality and the best warranty for the product.

Some models of UPS are highly appreciated by users today, you can refer to :

To use the UPS properly, effectively, in the long run, in addition to following the instructions of the manufacturer, there are a few things you need to remember as well:

1. The total capacity of the electrical equipment must not exceed the capacity of the UPS. When the electrical equipment uses electricity from the UPS, it is preferable to back up the data and then turn off the device properly or wait until the new generator continues to use the device, absolutely avoid operating large capacity machines or Use electrical equipment until the battery runs out of power so that the UPS will not be overloaded or damaged.
2. Batteries must be fully charged before the first use (the time depends on the manufacturer's specific instructions) and do not allow the battery to run low during use.

3. The backup battery pack should be placed in a flat, cool, dry place, away from flammable and explosive substances or avoid direct contact with sunlight, rainwater, high temperatures and need to be protected. Periodic maintenance to increase longevity.

Hopefully the above information has helped you better understand the UPS, so you can choose a device that best meets your needs!

See also :

1. [General] Common errors and how to fix UPS power supply
2. Top 5 cheap generators for home use
3. Pocket genuine buy address, reasonable price in Hai Phong, Hanoi, Da Nang, TP. HCM